The RUBBER AGE

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LATE NEWS of the Industry

Fisk Rubber Unable to Refund Notes; Committees Seek Reorganization Plan

FOLLOWING a statement by H. T. Dunn, president of the Fisk Rubber Company, that depletion of working capital will make it impracticable to refund the issue of $8,199,500 of 5½ per cent notes maturing on January 1, three protective committees have been formed, representing holders of the stocks, bonds and notes of the company, to work out a plan of reorganization. Mr. Dunn estimated that the Fisk Rubber Company will show a total loss in 1930 of $6,700,000 after interest, depreciation, and reserves for contingencies.

The protective committee representing the first preferred stock, first preferred convertible stock, second preferred stock, management stock and common stock is headed by Andrew J. Miller, of Hallgarten Co., and includes Joseph S. Maxwell, Herbert P. Howell and Wallace V. Camp.

Members of the committee representing the first mortgage twenty-year 8 per cent sinking fund bonds are Orrin G. Wood, resident Boston partner of Estabrook & Co., chairman; Carl P. Dennett, Thomas B. Gannett, Gifford K. Simonds and John C. Traphagen.

Theodore G. Smith, vice-president of Central Hanover Bank and Trust Company, is chairman of the committee formed to represent the five-year 5½ per cent sinking fund notes, which will mature on January 1. Other members of this committee are Leroy W. Baldwin, William E. Gilbert, Harold P. Janisch and James F. McClelland.

"The officers and directors of the Fisk Rubber Company," according to Mr. Dunn, "approve the organization of the protective committees who have requested the deposit of securities, and it is their belief that the interests of all classes of security holders can best be represented by these committees.

"Because of the general business depression and the drastic decline in prices of rubber and cotton, the tire industry has suffered a severe curtailment of output and profit. In the case of this company, the result has been a depletion of working capital to an extent which makes it impracticable to refund at maturity, January 1, 1931, the 5½ per cent notes now outstanding amounting to $8,199,500.

"Operations of the company during the year have been influenced by the need of maintaining as liquid a position as possible in view of the 5½ per cent note maturity. To this end, two of its fabric plants were closed, and tire manufacturing at its western plant at Cudahy, Wis., was discontinued early in June, also through a drastic reorganization in all departments, expenses have been radically reduced. Inventories and commitments are sufficient only for the immediate needs of operation.

"It is estimated that for the year ending December 31 operating loss including write-down of inventories but before depreciation, interest, and special reserves, will approximate $2,000,000, and after depreciation of $2,000,000, interest, etc. of $1,700,000, additional accounts receivable reserve of $500,000, and reserve for contingencies of $500,000, will result in a total loss for the year of approximately $6,700,000. As of December 31 it is estimated that the company as a going concern will show current assets of $17,000,000 with cash of over $2,000,000, and current liabilities of approximately $8,700,000 including the $8,199,500 5½ per cent notes, and current accounts payable of $300,000.

"The company will enter the new year on a deflated basis and with its car equipment and its domestic and foreign dealer connections intact. The loyalty and good will of customers throughout the world is an asset of great value and one worth guarding. Cooperation and patience on the part of security holders will permit, under normal operating conditions, the preservation of these intangible assets which liquidation would destroy.

"Security holders are therefore urged to promptly deposit notes and bonds and stocks in order that the various committees in cooperation with the management may endeavor to work out as speedily as possible a plan which will maintain the position of the company in the industry and restore its credit and earning power."

The Fisk Rubber Company showed losses of $7,496,457 in 1929 and $8,791,251 in 1928. Early in 1929 its common stock spurted to over $20 a share, but it has fallen since then and has sold recently for as low as 50 cents a share. The company's 5½ per cent notes, maturing January 1, are being sold on the New York Curb Exchange at about $15, while its 8 per cent sinking fund bonds, due in 1941, are traded in on the New York Stock Exchange at about $33.50

October Tire Output Gains Slightly; Casing Stocks Practically Unchanged

INVENTORIES of pneumatic casings on hand October 31 show practically no change as compared with September 30, according to statistics issued by the Rubber Manufacturers Association. This organization reports 9,802,687 casings on hand October 31 as against 9,811,764 casings on hand September 30.

Production of pneumatic casings for the month of October is placed at 3,582,416, an increase of 6.4 per cent over the September figure of 3,365,444. Production for October a year ago amounted to 4,611,480 casings. Shipments of pneumatic casings for the month of October amounted to 3,499,300 as compared with 4,405,176 casings in September, 1930, and 4,649,696 a year ago. The discrepancy between the lower shipments and higher production and the decline in inventories is explained by the fact that a large shipment of tires on its way from an Akron factory to its Pacific coast branch was not included in the month-end stocks.

Shipments of pneumatic casings for the first ten months of this year exceeded production by 4.3 per cent, whereas during the same period of 1929 there was no excess. Total production of all pneumatic, solid and cushion tires in the first ten months of 1930 totaled 45,720,355 units, indicating that the full year's output will approximate 52,000,000 units. This will compare with the 1929 production of 69,237,520 tires.

Inner tube production exceeded shipments in October for the first time since May. During the month, there were 3,951,310 inner tubes produced and 3,472,456 tubes shipped, leaving a stock in manufacturers' hands of 10,516,972 tubes. Solid and cushion tire shipments exceeded production, however, bringing stocks down to the lowest level in years.

The tire industry is estimated to have consumed 45,121,394 pounds of crude rubber and 14,725,540 pounds of cotton fabric during the month of October in the manufacture of all types of pneumatic casings, tubes and solid and cushion tires.

Firestone Shows Profit of $1,541,034; Deficit of $4,570,189 After Dividends

FINAL reports of the Firestone Tire & Rubber Company and subsidiaries for the year ended October 31, 1930, show a net profit of $1,541,034 after depreciation, interest, Liberia development expenditures, federal taxes and writing down inventories to market prices after applying against same a reserve for contingencies of $500,000 previously provided. This, however, was equal to only $2.66 a share on the 578,633 shares of 6 per cent preferred stock outstanding at the close of the year and resulted in a deficit after common and preferred dividends of $4,570,189.

In the year ended October 31, 1929, net profit was $7,726,870 after similar charges, equivalent after subsidiary and 6 per cent preferred dividends to $3.26 a share (par $10) on 2,239,860 shares of common stock then outstanding. In that year operations resulted in a surplus after dividends of $3,189,475. Net profit in the year ended October 31, 1928, was $7,072,014 and in the year ended October 31, 1927, was $13,780,965.

Net sales for the year were $120,015,663, which is 17 per cent less than the previous year's total of $144,585,804. Harvey S. Firestone, president of the company, pointed out in his message to stockholders that the profit shown was made after absorbing expenses in organizing and establishing one-stop service stations and establishing and developing the company's battery business. This was the result of "readjusting our organization and reducing our expenses in every phase of our business," according to Mr. Firestone.

"Our program in establishing one-stop service stores," Mr. Firestone stated, "has given us knowledge and experience that has been of great help to us and our dealers in building a larger retail business along more economical lines and at more stable prices. We believe this, in no small measure, accounts for the fact that while it is estimated there are 25,000 less tire dealers today than there were two years ago, we succeeded last year in securing 6,928 new dealers who joined with us. We have established over 400 one-stop service stores and have invested in them approximately $25,000,000 in land, buildings and working capital. Those are separate corporations in which we have financial control. While we will continue to establish these one-stop service stores where it is found necessary and profitable to do so, this will be on a very conservative scale.

"We are not contemplating any further plant extensions, but we did find it necessary to establish a plant in South America with a capacity of 1,000 tires and tubes a day. We have purchased land in the Argentine, at Buenos Aires, and we plan to have the plant built and in operation by May 1, 1931."

The consolidated balance sheet of the company shows total assets as of October 31 at $147,319,225 as against $161,647,466 a year previous. Surplus was $41,984,249 against $47,453,508 in 1929.

The consolidated income account of the company for the year ended October 31, 1930, compares as follows with the preceding year:

	1930	1929
Net sales	$120,015,663	$144,585,804
Costs and expenses	*112,364,530	128,761,132
Operating profit	$7,651,133	$15,824,672
Other income	1,610,146	844,181
Total income	$9,261,279	$16,668,853
Depreciation	4,914,656	4,639,792
Interest paid	1,431,893	2,084,729
Lib. dev. expenses	885,398	1,074,218
Federal taxes, etc.	488,298	1,143,244
Net profit	$1,541,034	$7,726,870
6% preferred dividends	2,935,147	388,506
7% preferred dividends	.....	1,168,658
Preferred divs. Firestone Footwear	.....	31,951
Common dividends	3,176,076	2,948,280
Deficit	$4,570,189	†$3,189,475
P. & L. surplus	$41,984,249	$47,453,508

*Including writing down of inventories to the general basis of the lower of cost or market at October 31, 1930, after applying against same reserve for contingencies of $500,000 previously provided. †Surplus.

Norwalk Tire & Rubber Company Shows Net Loss of $194,459 in Fiscal Year

THE Norwalk Tire & Rubber Company, Norwalk, Conn., has reported for the year ended September 30, 1930, a net loss of $194,459 after interest, depreciation and a reserve for doubtful notes and accounts receivable. This compares with a net loss of $415,324 after similar charges in the previous fiscal year and with a profit of $46,883, equal to $4.44 a share on 10,546 shares of 7 per cent preferred stock, in the year ended September 30, 1928.

Gross profit on sales was reported as $105,705, while selling, general and administrative expenses totaled $184,106, resulting in a net loss from operations of $78,401.

Other deductions amounted to $59,490, the chief item being depreciation of plant and equipment to the sum of $50,914, while other income totaled $10,280. A reserve of $66,848 was set up for bad and doubtful accounts and notes. The operations for the fiscal year just past increased the company's profit and loss deficit from $147,516 to $341,598, allowance having been made for insurance recovery applicable to the prior year to the amount of $379.

"The cost of crude rubber," states John W. Whitehead, president, in his report to stockholders, "declined during the year from high of 19⅞ cents per pound to low, at September 30, 1930, of 7⅝ cents, which, notwithstanding our hand-to-mouth policy of buying, made necessary an inventory write-down of $33,162. The constant fluctuation in the cost of crude materials together with premature price reduction in tires and tubes and the more economical use of tires in service on the part of consumers reduced the demand for the company's product throughout the year. These factors were the principal reasons for the net loss of $78,401 from operations for the current year.

"Sales declined during the year 38 per cent in dollars and cents volume or about 30 per cent in units. The economical use of tires by consumers and conservatism on our part in extending credit were the chief responsible factors. The unit decline, however, compares favorably with the industry. In keeping with this decline our sales and administrative expense for the year just ended was 60 per cent less than for the previous year.

"As of November 1, 1930, a general price adjustment increased selling prices of tires and tubes slightly. This is the first indication of a desire on the part of the industry to apply a remedy to a deplorable condition which has existed over a period of years, which, in view of the lower price of crude rubber, would seem to afford an opportunity for betterment."

United States Rubber Consumption Dropped to 23,479 Tons in November

CONSUMPTION of crude rubber in the United States for the month of November amounted to 23,479 long tons. This was not only lower than the October consumption of 27,271 long tons and the November, 1929, figure of 27,659 long tons, but was the lowest consumption figure for the month of November since 1923.

For the first eleven months of 1930, domestic consumption has been 349,560 long tons, according to the quarterly and monthly reports of the Rubber Manufacturers Association. This compares with the consumption of approximately 444,000 long tons in the same period of 1929.

It appears unlikely, therefore, that domestic rubber consumption for the full year will exceed 375,000 long tons, and doubtful whether that figure will be reached. December absorption has been lower than that for November in every one of the past six years, while consumption for every month of 1930 thus far has been below the corresponding month last year. Should these conditions continue and December absorption this year total in the neighborhood of 23,000 long tons, the year's consumption figure would be approximately the same as in 1927 when 372,528 long tons were used. It would be well below the 1929 total of 466,475 long tons and the 1928 figure of 442,227 long tons.

Crude rubber imports in November amounted to 31,765 long tons, as compared to 43,729 long tons in October, according to the association's own figures. Stocks on hand and stocks afloat to this country both continued to increase and on November 30 were 189,925 long tons and 52,538 long tons, respectively.

Seiberling Rubber Company Reports Loss of $1,282,098 in Fiscal Year

REPORT of the Seiberling Rubber Company and subsidiaries for the year ended October 31, 1930, shows a net loss of $1,282,098 after interest, depreciation and other charges. This compares with net income of $132,207, equivalent after preferred dividends to less than one cent a share on 267,346 shares of no-par common stock, in the preceding year. In the year ended October 31, 1928, the company earned $511,968, and in the ten months ended October 31, 1927, Seiberling earnings were $1,016,068.

Sales for the year just ended were $9,338,150 against $13,999,396 in the year previous, and $16,329,111 in the year ended October 31, 1928. Actual operating loss in the 1929-1930 fiscal year was $854,272 before depreciation and writing down of inventories.

"However, our statement shows no bank indebtedness," states F. A. Seiberling, president, in his annual report to stockholders, "and current assets exceed current liabilities by $2,672,218, a ratio of more than 4 to 1. Cash on hand nearly equals current liabilities.

"A determination to face the coming year with a clean slate caused Seiberling officials to adopt a liberal depreciation policy in this report. Current property account has been depreciated so that its value per unit of tire capacity is the lowest of any known in the industry.

"It is a fact that organization was slow in adjusting itself to conditions that have existed the past 18 months. But we have every reason to justify our opinion that the coming year will yield a larger volume of business at a substantial profit.

"Our plant efficiency has been greatly increased and our cost of distribution reduced. Our policy of distribution through independent dealers only has been instrumental in securing in the past four months more than 1,000 new dealers.

"Our present position alone is sufficient reason for a bright outlook for our 1931 business. In my opinion, in 1931 all business will have a trend toward a return to normal conditions.

"Nevertheless, tire buyers will demand the utmost in tire value for the tire dollar which they spend. Our present merchandising plan is exactly adjusted to present conditions. The Seiberling Rubber Company now can make a profit on average monthly sales as low as $600,000," Seiberling said.

"While we do not care to make definite announcement at this time, I can say definitely that Seiberling will, at some time in 1931, introduce a most revolutionary product. This product promises to exceed by a liberal margin the performance of any tire known today.

"The general business depression has resulted in curtailed consumption of commodities, to which tire sales have been no exception. The result has been intense competition, with reduction of profit margins throughout the rubber industry in an effort to maintain volume. The tire industry has had a fall of approximately 24 per cent in the number of tires sold the last year, as against the preceding year, and an even greater percentage in value due to lower prices.

"The Seiberling Rubber Company has not suffered in either respect to the extent of the average of the indus-

try. Our present outlook for 1931 is, without undue optimism, unusually bright. At the present rate of increase of our distribution, we may conservatively anticipate that our sales for 1931 will equal $12,000,000."

Seiberling common stock has declined steadily from a peak of 67⅞ in December, 1928, to a low of 9 last year and a low of 4 this year. The preferred shares, which sold as high as 107⅞ early in 1929, have sold as low as 30 this year. Dividends on both classes of stock were discontinued a year ago.

The consolidated balance sheet of the Seiberling Rubber Company and its subsidiaries as of October 31, 1930, shows total assets of $9,647,475 comparing with $10,222,791 on October 31, 1929, and surplus of $1,213,157 against $2,783,878. The item of $2,400,000 in bank notes payable a year ago has been replaced by debenture notes to the amount of $3,100,000. Current assets totaled $3,531,755 and current liabilities $859,537, comparing with $5,323,748 and $2,991,920, respectively, at the end of the preceding fiscal year.

New York Rubber Group, A.C.S., Holds Christmas Party

At their meeting on the evening of December 10, on the Park Central Hotel Roof, the New York Group of the Rubber Division, A. C. S., held the most unique session ever carried out by any group in the Division and set a standard both in point of elaborateness of program and numerical attendance which will probably stand as a record for some time to come. The gathering served as a happy combination of a scientific discussion and an entertaining Christmas party. Over 250 members and guests attended.

WM. H. WHITCOMB
New Chairman, New York Group, A. C. S., 1930-31

The meeting was preceded by an excellent dinner served in the very colorful surroundings of the hotel roof. Music was furnished throughout the evening by the orchestra of the hotel. The dinner tables, each seating ten, were attractively decorated with Christmas greens and lighted candles. At each plate were placed six souvenirs, presented with the compliments of the season by member concerns: a set of four re-odorized rubber coasters, from the General Atlas Carbon Company; a sharpening stone, from Raybestos-Manhattan, Inc.; a box of re-odorized rubber bands, from the Rare Metals Products Company; an automatic pencil, from the E. I. duPont de Nemours and Company; a hard rubber comb, from the American Hard Rubber Company; and a rubber bottle stopper, from the Sun Rubber Company.

During the dinner a guessing contest was conducted on the number of rubber stoppers contained in a large glass jar. The prize, which was a bottle of champagne, went to Mr. Bratten, who guessed 468. There was also a balloon blowing contest, won by E. R. Bridgwater.

At the conclusion of the dinner, the election of officers for the ensuing year took place, the election of the new chairman, W. H. Whitcomb, of Henry L. Scott Company, being unanimously made upon the recommendation of the nominating committee. It was decided to appoint the new secretary and treasurer at a later date, who will be designated by the incoming chairman.

The first talk to be given after the dinner was by Dr. Donald A. Laird, of Colgate University, who spoke extemporaneously on the elimination of smell from rubber goods and re-odorizing by the means of various aromatics. His talk was largely an elaboration of his article on the same subject which appeared in THE RUBBER AGE, July 10, 1930. He outlined the work which is being done along these lines by the various rubber goods manufacturers and stressed the future possibilities in this connection. He also discussed the difficulties to be met with in determining upon proper aromatcs, which will compound satisfactorily and will not affect the other factors in the vulcanizing processes. His talk was very illuminating and opened up a wide and new field in the chemistry of rubber compounding and manufacture.

Dr. Laird was followed by D. F. Cranor, of Binney and Smith Company, who exhibited a moving picture depicting the entire story of the manufacture of carbon black. Mr. Cranor's running description of the process, as the film unfolded, was an interesting graphic story of this industry, which has come to play such an important part in rubber manufacture.

Walter Grote, of "black magic" fame, also performed some mysterious and amusing tricks.

The evening ended in a lot of jollity and fun in the drawing of the Christmas presents from the lottery. Each member and guest of the evening retained half of his ticket of admission, bearing a number, and as the other half of the ticket was drawn from the lottery those holding the lucky numbers were awarded the presents. Over sixty presents were presented, each being contributed by various companies connected with the industry.

A vote of thanks was accorded the retiring officers and an excellent evening was had by all.

The following companies donated presents in the lottery or grab-bag contest: Aluminum Flake Company, American Cyanamid Company, Bakelite Corp., Binney & Smith Co., Callaway Mills, Continental Rubber Co., Davol Rubber Co., Eagle Picher Lead Co., Electric Hose & Rubber Co., Essex Rubber Co., J. M. Huber, Inc., Imperial Color Works, *India Rubber World*, Johns-Manville Corp., Lee Tire & Rubber Co., Littlejohn Co., Manhattan Rubber Mfg. Div., Pete Murawski, H. Muehlstein & Co., Nassau Sulphur Works, National Lead Co., Naugatuck Chemical Co., N. J. Engineering & Supply Co., N. J. Zinc Company, Okonite Co., C. J. Osborn, Pequanoc Rubber Co., Philadelphia Rubber Works Co., John Royle & Sons, THE RUBBER AGE, Rubber Service Laboratories, Schavolite Golf Corp., Henry L. Scott Co., Shore Instrument Co., Taylor Instrument Co., Thermoid Rubber Co., United Carbon Co., United Color & Pigment Co., U. S. Rubber Co., R. T. Vanderbilt Co., Wellington, Sears & Co., Wishnick-Tumpeer, Inc.

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(Other news of the industry will be found on pages 311-317)

What is the OUTLOOK *for the* RUBBER INDUSTRY *in* 1931?

Leaders Look Toward New Year with Unabated Confidence—Raw Material Prices More Stabilized Than Ever—Encouraging Factors Now Appearing in the Situation Warrant an Optimistic View for Future

IN spite of the general business depression and the specific discouraging factors surrounding the rubber industry during the last year, the leaders of the industry are looking forward to 1931 with optimism. The past twelve months have been especially hard ones for both the crude rubber producing and the rubber goods manufacturing industries. The ills of the one have been contagious to the other and visa versa. Reduced unit sales in rubber goods, brought about by the world-wide business slump, caused a severe drop in crude rubber consumption. This low absorption, in the face of a continued high production of the raw commodity, brought market prices to the lowest in history and general distress to the plantations. In turn, the low price of rubber, coupled with that of cotton, proved a severe boomerang for the manufacturing industry, which was faced with a resulting loss in inventory values on raw material stocks.

But the rubber industry has been through similar periods of distress and discouragement, and is too well intrenched as an indispensable part of the industrial structure of the world to have fear or apprehension as to its ultimate return to prosperity. Moreover, certain encouraging factors are already appearing on the horizon, which warrants the note of optimism which pervades in the forecasts for the coming year.

Economies and Retrenchments Completed

Economies and retrenchments within the individual manufacturing companies have been completed and in some directions the concerns have again begun to expand their production schedules. The necessity for tire replacements must obviously become more acute each day, and should promise much for the industry in the next few months. The heavy building and construction programs planned by federal, state and city governments and the large industrial projects which have been scheduled for 1931, should call for a large increase in the market for mechanical rubber goods. The rubber footwear industry can still place hope in a rigorous winter. Export trade in rubber products must await a return to more normal conditions abroad, but can confidently count on an increase in business with every sign of improvement.

There is a far greater chance of a stabilization of price for crude rubber during the next year than ever before—at least, the commodity should be at a very favorable figure. Prices of other raw materials, including compounding ingredients are at attractive levels and bid fair to remain more or less constant during the next twelve months. These latter factors should go far to prevent any serious inventory losses. Barring any vicious tire price cutting or other price wars within the manufacturing industry, the coming year should bring improvement in earnings to the majority of individual companies.

As usual, on the eve of a new year, THE RUBBER AGE has asked the leaders in the rubber manufacturing industry, the executives of chemical and machinery suppliers to the industry, and the heads of the reclaiming and scrap rubber industries, for an expression of opinion as to the outlook for 1931. The replies have been scant, many preferring to withhold their judgment until a clearer picture of the new year's conditions presents itself. But all who have had the courage to make predictions have expressed a confidence in the future and are looking toward an era of slow but steady improvement. The replies received are published below:

Tire Demand Should Exceed 55,000,000

SAMUEL WOOLNER, JR., *president, Rubber Manufacturers Association and president, Kelly-Springfield Tire Company.*

In regard to the outlook for 1931 in the rubber tire industry, I should say that the consumption based on the year 1930, with a reasonable increase in replacement, should approximate at least 55,000,000. The first quarter the demand may be, and likely will be light, but from then on there should be an improvement. With both rubber and fabric at the lowest prices this should be a good ground work upon which to erect a more scientific and solid foundation than the present one. It is up to the industry to make an attempt to do this, as upon the present foundation which finds much too large a proportion of the whole in the low price field, it is impossible to erect a super-structure that would be sound and lasting.

Expect Satisfactory Year

HARVEY S. FIRESTONE, SR., *president, Firestone Tire and Rubber Company.*

The great problem today of every manufacturer is to merchandise and distribute his products more economically. We have made great progress the past year in this respect by readjusting our merchandising and distributing system and by material reductions in all our expenses. With our inventories written down to market prices, which are the lowest in history, and with a loyal and ambitious organization that has a better understanding of its problems than ever before, we are looking forward to a very satisfactory year.

Looks for Only Slight Improvement

P. W. LITCHFIELD, *president, Goodyear Tire and Rubber Company.*

The rubber business, especially in tires, had a hard year in 1930, owing primarily to the shrinkage in volume, due to the world-wide depression, and, secondly, due to rapid depreciation of both raw

and finished product inventories, following the rapid recession of prices of our two principal commodities, rubber and cotton. We will probably be squared away, with a favorable inventory position in 1931, which will remove the secondary cause, however the business depression continues and with a bad start in the beginning of the year, along with the continued over-production capacity of the industry, which always results in keen competition, we cannot count upon a very profitable year in 1931. So far as volume is concerned, we should have as much or more output in 1931 as compared to 1930, so that unemployment conditions should be somewhat improved. On the other hand, we look upon 1931 as offering a possibility of some improvement over 1930, but not to any great extent.

Predicts Domestic Consumption of 450,000 Tons of Rubber

J. D. Tew, *president, The B. F. Goodrich Company.*

The rubber industry, like most other industries, has suffered severely as the world trade depression has increased in intensity throughout 1930. Volume has contracted sharply and competition has gone beyond economic bounds, while our main raw materials, rubber and cotton, have declined to levels well below cost of production. We anticipate gradually improving world trade through 1931 and the rubber industry can look forward to materially better operating conditions during coming months. During 1930 the industry manufactured 53,000,000 tires and sold 55,000,000. We predict a production of 63,000,000 tires in 1931. The rubber industry consumed 380,000 tons of rubber in 1930 and we should consume at least 450,000 tons during 1931.

Foresees Larger Volume of Business

F. A. Seiberling, *president, Seiberling Tire and Rubber Company.*

We have every reason to justify our opinion that the coming year will yield a larger volume of business at a substantial profit. Our plant efficiency has been greatly increased and our cost of distribution reduced. Our policy of distribution through independent dealers only has been instrumental in securing the past four months more than a thousand new dealers. Our present merchandising plan is adjusted to present conditions and the Seiberling company can now make a profit on average monthly sales as low as $600,000. At present rate of increase of our distribution we may conservatively anticipate that our 1931 sales will equal $12,000,000.

Expects Higher Tire Prices

A. A. Garthwaite, *general manager, Lee Rubber and Tire Corporation.*

Higher prices on tires will be necessary sometime next year, I believe, regardless of the cost of crude rubber during 1930, for the simple reason that the cost of production plus the fixed charges of the industry, based on the tire consumption requirements of the United States, will not permit the present resale schedules. It is not likely that as many tires will be required for original equipment in the first six months of 1931 as were used for new cars in the first six months of 1930, while replacement tire business will probably be greater during the same period, but fixed charges per tire produced will necessarily be larger, and fixed charges must be met. Most everyone knows that tire users are getting greater values today than ever before in the history of the industry. The tire dollar is buying more than any other dollar in a motorist's budget. The rubber industry is protected by a fair tariff. The demand for tires is ample to sustain reasonable employment and a fair return on the capital invested as an industry if stabilization is established in production schedules and selling policies. Price wars not only weaken the contestants but leave debris in their path which takes many months to clean up, meanwhile damaging the investment rating (both bonds and stock) of the industry.

Expects "Happy Days To Be Here Again"

L. J. Plumb, *President, U. S. Rubber Reclaiming Company*

I have been so fed up with statistics, analyses and predictions for the near future of our industrial situation, that I refuse to add to the already gigantic accumulation that has been unloaded on a bewildered public. Whether it is due to stock market slumps; Soviet dumping; Chinese or India disturbances, South American revolts, German demands for changes in reparation payments, French hoarding of gold, or the monoply of Notre Dame's football team—different prophets have their views. For myself, I revert to the homely, that for the past few years we in particular and the world in general have made more than could be used, and until the surplus produced has been consumed, increased production with all its attendant blessings can hardly be expected. In the meantime, a sane viewpoint might be advisable. We can all of us afford to come down to earth, keep our feet on the ground and buckle down to real hard work, and get ready for the inevitable turn in the "cycle." This is not the first depression the rubber industry has passed through, nor will it be the last. Convalescence is always slow to the patient. Let us forget the causes, for at this stage even the best doctors cannot agree upon them. Let us stop wondering what hit us and begin building up our industrial constitution bit by bit, day by day, and hour by hour. If our every energy is so occupied, we will find "happy days are here again," before we realize it.

Improvement Expected After First Quarter of 1931

H. D. Day, *president, Philadelphia Rubber Works Company.*

The rubber reclaiming industry has suffered from reduced volume during the past year in common with industry in general, and more especially the rubber industry. Prices for reclaimed rubber are today the lowest on record, in spite of the fact that reduced volume has tended to increase manufacturing costs and minimize the savings made possible by the lower waste material markets. The extremely low price of crude has been only one factor in bringing about the present condition. As compared with the depression year 1921 it is encouraging to note that the percentage use of reclaimed as compared to crude has only dropped from a maximum of 51% to 40%, as compared to 24% in the year 1921. This is due largely to the fact that reclaimed today is established as a definite compounding ingredient, and is not simply a substitute for crude rubber. Regarding the future, we look for some improvement after the first of the year. This improvement will probably be slight during the first quarter and increase as we go further into the year. We can only look for a return to normal volume when the rubber industry in general gets back to normal.

Sees Increased Reclaimed Rubber Demand

V. H. Dingmon, *The Xylos Rubber Company.*

Regarding prospects for the coming year, we feel quite optimistic. There are some indications right now that business is improving and we believe that the demand for Xylos reclaims will increase during the year 1931. There has been practically no change from reclaimed rubber to crude among our customers and we look forward to next year with confidence.

Preparing for Greater Carbon Black Demand

A. F. Kitchel, *vice-president, Binney and Smith Company.*

Quite naturally, we have been giving this matter a great deal of thought and have made it a point during the last three or four weeks to canvass our trade as thoroughly as possible so that we might arrange our own affairs for the coming year. As we see the situation today, we cannot help but be impressed with the better feeling which seems to exist in most directions for the future. We do not mean by this any over-optimistic enthusiasm, but more of conservative assurance that the bottom has been reached and that the lessons of the past year have been taken very much to heart. We are preparing, therefore, for an increasing consumption of carbon black and that requirements will be on the upgrade after the turn of the year. The general estimates seem to indicate that there will be at least 20% more tires manufactured in 1931 than have been made this year, and possibly this will be bettered. If so it will correct the lack of stability which has existed in our line for the last few months, as the curtailed production of carbon black will readily be consumed under such circumstances.

Heavy Stocks of Carbon Black To Be Absorbed

R. H. Eagles, *J. M. Huber, Inc.*

The prosperity of the carbon black industry is linked so closely with conditions in the rubber industry that a serious situation has

(*Concluded on page* 309)

*Domestic Renewal Sales of Automobile Casings**

An Analysis of the Rate of Tire Replacements Over the Last Twenty Years—Shows a Consistent Drop in Number of Tire Renewals per Car—Only 1.66 Tire Replacements Bought per Car in 1930

ONE complicated problem of the rubber industry is forecasting domestic renewal sales of automobile casings. The forecast made goes far to determine the position of the rubber manufacturer, the rubber producer, and the rubber dealer, in the crude rubber market for a given year. Seldom will two firms or individuals reach indentical conclusions from their studies of the problem.

Detailed monthly statistics for use in studies of tire renewals go back only a few years and scarcely present the facts in proper perspective. The tendency is for a short term view to be taken on the basis of the experience of very recent years. Usually the subject is considered from the angle of annual renewals per car, and the ordinary practice is to regard a tire as just a tire, regardless of its particular type or construction.

The following analysis of the history of tire renewal sales is presented to bring together in usable form the available statistical data, and to draw reasonable conclusions from this data. It has been necessary to include numerous estimates in order to make a fairly complete survey, and while such estimates have been carefully made, they will doubtless disagree in detail with those of private investigators. The net results of the survey and the conclusions drawn may be helpful to the industry in forecasting domestic renewal sales of tires in future, and the methods followed can also be employed in the study or sales in individual foreign markets.

In order to provide necessary basic data, the method followed was to (a) establish as closely as possible the annual production of automobile casings, (b) reduce this by subtracting annual exports, (c) further reduce by the number of casings used for original equipment on new automobiles, (d) adjust the figures for changes in manufacturers' year-end inventories of casings, and (e) add the number of casings imported. In estimating registrations of pneumatic tire vehicles, allowance has been made for registrations of vehicles equipped with solid tires.

The annual domestic sales of automobile casings to dealers and distributors for renewal purposes may be summarized from the accompanying table.

Renewal Sales Per Car

It is customary to estimate tire renewals per car by dividing the renewal sales for a given year by the registrations one year or two years previous. In the following statement, registrations two years previous are taken as the divisor, since cars manufactured and sold during recent years require few tire renewals during their first year of operation under current conditions, although during the early years of the period covered this was not the case.

The statement shows the estimated total annual registrations of pneumatic-tired cars and trucks, the estimated domestic renewal sales of casings, and the average renewal sales per vehicle, as well as the annual changes in average renewal sales per car both in volume and in percentage of the rate for the preceding year.

The indicated renewal sales per car averaged between 6.50 and 7.00 casings yearly from 1910 to 1917. In 1918

*Extracted from a survey made by the Rubber Division, U. S. Department of Commerce, Special Circular 2865, December 10, 1930.

Estimated Annual Renewal Sales of Automobile Casings

	Estimated Production	*Minus Original Equipment*	*Minus Exports*(a)	*Plus or Minus Inventory Adjustment*	*Imports Plus*	*Estimated Renewals*
1910	2,400,000	724,000	51,000	— 100,000	.....	1,525,000
1911	3,000,000	797,276	72,000	— 100,000	.....	2,030,724
1912	5,000,000	1,424,000	105,000	— 500,000	.....	2,971,000
1913	6,000,000	1,846,000	132,000	.....	.....	4,022,000
1914	8,021,371	2,174,716	139,000	+ 300,000	.....	6,007,655
1915	12,000,000	3,583,720	495,000	— 50,000	.....	7,871,280
1916	18,564,957	6,139,164	644,000	—1,000,000	.....	10,781,793
1917	25,835,573	7,085,692	496,000	—1,500,000	.....	16,753,881
1918	23,000,000	4,046,444	460,000	+1,000,000	.....	19,493,556
1919	32,835,509	7,072,116	964,000	—1,250,000	.....	23,549,393
1920	32,400,000	8,265,816	1,543,000	—1,820,000	.....	20,771,184
1921	27,297,919	6,145,220	662,000	+1,623,481	.....	22,127,180
1922	40,930,000	9,866,288	1,437,753	— 902,689	.....	28,723,270
1923	45,425,591	15,628,016	1,488,741	+ 269,908	9,179	28,587,939
1924	50,820,000	13,947,908	1,389,135	—1,241,089	183,586	34,425,454
1925	58,784,073	16,392,120	1,769,819	— 536,016	21,139	40,107,257
1926	60,120,000	16,712,000	1,654,584	—1,735,650	17,504	40,035,270
1927	63,549,949	13,024,196	2,810,640	+ 144,364	5,450	47,864,927
1928	75,527,000	16,761,852	2,689,351	—2,520,017	4,469	53,560,249
1929	69,807,118	20,527,864	2,979,438	+ 747,340	5,540	47,052,696

(a) Including shipments to noncontiguous territories of the United States.

Estimated Renewal Sales Per Car

Year	*Registrations of Pneumatic-Tired Automobiles*	*Year*	*Renewal Sales: No. of Automobile Casings*	*Renewal Sales: Average Per Car Casings*	*Change: Tires*	*Change: Per Cent*
1908	194,400	1910	1,525,000	7.84	.....	.....
1909	305,950	1911	2,030,724	6.64	—1.20	—15.3
1910	458,500	1912	2,971,000	6.48	— .16	— 2.4
1911	619,500	1913	4,022,000	6.50	+ .02	+ 0.3
1912	902,600	1914	6,007,655	6.65	+ .15	+ 2.3
1913	1,194,262	1915	7,871,280	6.59	— .06	— 0.9
1914	1,625,739	1916	10,781,793	6.63	+ .04	+ 0.6
1915	2,309,666	1917	16,753,881	7.26	+ .63	+ 9.6
1916	3,314,538	1918	19,493,556	5.88	—1.38	—18.5
1917	4,702,830	1919	23,549,393	5.01	— .87	—14.8
1918	5,726,990	1920	20,771,184	3.65	—1.36	—27.6
1919	7,012,602	1921	22,127,180	3.16	— .49	—12.8
1920	8,555,262	1922	28,723,270	3.36	+ .20	+ 6.3
1921	9,755,804	1923	28,587,939	2.93	— .43	—12.9
1922	11,518,880	1924	34,425,454	2.99	+ .06	+ 2.0
1923	14,346,058	1925	40,107,257	2.80	— .19	— 6.6
1924	16,861,814	1926	40,035,270	2.38	— .42	—15.3
1925	19,291,428	1927	47,864,927	2.48	+ .10	+ 4.2
1926	21,442,110	1928	53,560,249	2.50	+ .01	+ 0.4
1927	22,677,488	1929	47,052,696	2.11	— .39	—15.6
1928	24,060,204	1930	*40,000,000	1.65	— .45	—21.3
1929	26,105,183					

*Maximum estimate.

this rate began a long decline which continued through 1921, or four successive years, reaching a low for the last year of 3.16 casings per car. In 1922 the rate recovered to 3.36, an increase of 6.3 per cent. This was followed by another year of decline to 2.93, a recovery of 2 per cent to 2.99, two more years of decline to 2.38, subsequent recoveries of 4.2 per cent in 1927, and of 0.4 per cent in 1928, and a decline of 15.6 per cent to 2.11 in 1929.

Renewals in 1930 Only 1.66 Tires per Car

From records thus far available for 1930, it appears that 40,000,000 casings sold for renewals will be a maximum figure, and on that basis the 1930 renewals per car would work out at 1.66, a decline of 21.3 per cent from 1929.

The general tendency has been steadily downward since 1917, and while there have been temporary increases in the rate of renewal sales per car, these increases have tended to become smaller during the period. The increase in 1917 over 1916 was 9.6 per cent; in 1922 over 1921 it was 6.3 per cent; in 1924, 2.0 per cent; in 1927 and 1928 over 1926, just under 5 per cent. It would seem that an increase of 10 per cent in the rate would be a high maximum to anticipate for any particular year, based on this past record.

One of the possible effects of this constant decline in the past twelve years have been to cause manufacturers to over-estimate their market, and to cause rubber producers and dealers to over-estimate the demand for rubber.

There have been changes in trade practices during the period which influence the indicated renewal sales per car figures. In the earlier years motorists did not so often buy new cars equipped with spare tires, and the more recent practice of supplying one or two spares with new cars tends to anticipate normal renewals. By allowing only four tires per car for original equipment throughout this study, and figuring all spare tires as renewals, the indicated renewals figures are made higher than actual renewal sales, especially in years of abnormally high automobile production.

Effect of General Business Conditions

That tire renewal sales are influenced by general business conditions is an axiom that probably everybody will accept. But it is noteworthy that renewals per car began to decline in the boom post-war years, that they showed no marked increase in the boom year of 1925, and that they declined to 1929 in advance of general business. There is some evidence that renewal sales of tires move up and down in advance of general business.

It is frequently said that tire renewal sales are usually excellent in years of low automobile production. This seems to be borne out for 1924 and 1927, but not for 1918, 1921, and 1930; perhaps in 1930 motorists have been wearing out spare tires to an unusual degree, and perhaps they started the year with tires in condition much above average; that motorists were in possession of an unusually high ratio of spares is hardly indicated by the declining renewal sales rate in 1929, and dealers stocks at the end of 1929 were not considered excessive.

With the increasing production of six and eight-ply passenger car balloons, it seems not unlikely that tire life may be further increased. This class of tires is the only one to show a numerical increase in production in 1930 and its increase in 1929 was at a more rapid rate than for other balloon tires. So long as the percentage of total output credited to so-called super-quality tires continues to increase there is no great likelihood that the rate of tire renewals will also increase, over a period of years.

The question is whether subnormal buying of tires in 1930 has brought tire renewal sales per car to a lower point than they will average in future. Each low point registered during the past twelve years has been succeeded by one still lower; there was only a 6 per cent recovery in 1922 as compared to 1921, after four years of declining renewals per car. If the past is accepted as a guide, perhaps we have not yet reached the minimum figure of renewal tires that may be attained if super-quality tires continue to increase in popularity. Most of the six- and eight-ply tires have reached consumers as renewals, and if they should be generally adopted as original equipment by automobile manufacturers we might approach even more closely that millenium at which tires would last the life of the car.

Census of Manufacturers, 1929

Rubber Goods Other Than Tires, Inner Tubes, and Boots and Shoes

THE Bureau of the Census announces that, according to a preliminary tabulation of data collected in the Census of Manufactures taken in 1930, the total shipments or deliveries in 1929 of rubber goods other than tires, inner tubes, and boots and shoes by manufacturers in the United States were valued at $320,374,129 (at f.o.b. factory prices), an increase of 2.1 per cent as compared with $313,750,086 reported for 1927, the last preceding census year. The principal items in the 1929 output were as follows: Rubber heels and soles (including composition or fiber), 338,471,665 pairs, valued at $25,676,065; rubberized fabrics, $28,782,758; rubber belting, 45,347,145 pounds, $26,391,406; rubber hose, 272,276,827 feet, $37,678,779; rubber packing, washers, gaskets, liner trips, etc., $10,377,989; hard rubber goods, $15,647,816; reclaimed rubber, 365,943,329 pounds, $24,627,431; druggists' and medical sundries (except rubber gloves), $10,683,406; rubber flooring, mats, and matting, $12,602,637; tire sundries and repair materials, $23,632,057.

Of the total shown for 1929, establishments in the "Rubber goods, other than tires, inner tubes, and boots and shoes" industry—those engaged primarily in the manufacture of rubber goods other than tires, inner tubes, and boots and shoes—contributed $233,740,066, and establishments engaged chiefly in other lines of manufacture contributed $86,634,063.

This industry, as defined for census purposes, embraces establishments engaged wholly or principally in the manufacture of rubber belting and hose, rubberized fabrics, druggists' and medical sundries, rubber flooring, mats, heels and soles, etc.

The statistics for 1929, with comparative figures for 1927, are given in the following table. The figures for 1929 are preliminary and subject to revision. They are based on actual returns from manufacturers who contributed the greater part of the total value of products reported at the last preceding census, on returns from manufacturers who reported for the first time at the census for 1929, and on estimates for a few establishments which reported at the census for 1927 but for which returns for 1929 have not yet been received.

Summary for the Industry: 1929 and 1927

	1929	1927	Per Cent of Increase
Number of establishments	400	385	3.9
Wage earners (average for the year)	39,029	36,893	5.8
Wages	$48,968,643	$45,930,934	6.6
Cost of materials, containers for products, fuel, and purchased electric current	$114,753,915	$117,776,651	....
Products, total value	$242,813,684	$230,781,250	5.2
Rubber goods	$233,740,066	$222,797,785	4.9
Other products	$9,073,618	$7,983,465	13.7
Value added by manufacture	$128,059,769	$113,004,599	

BUY NOW—Stock up with compounding materials at their present low prices.

Toxic Substances *in the* Rubber Industry

PART XVII

By P. A. DAVIS, A.B., M.A., M.D.

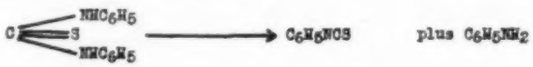
Assistant Medical Director, Goodyear Tire & Rubber Company

THIO-CARBANILID

THIO-CARBANILID or diphenyl thio-urea is one of the old accelerators but is still used quite extensively. It has certain disadvantages and is replaced in many cases by other compounds, chiefly the guanidine compounds.

Thio-carbanilid is prepared by the action of carbon bisulphide on primary or secondary aromatic amines.

Thio-barbanilid or diphenyl thio-urea is a white crystalline salt with a melting point of 152°-154°. The commercial product varies as to purity and may contain as impurities some free anilin, triphenyl guanadine and sulphur compounds. The chemically pure thio-carbanilid is supposed to be non-toxic and does not produce a dermatitis. I have not discovered any cases of toxic poisoning or a dermatitis that has resulted from the ordinary use of chemically pure thio-carbanilid. However, the impurities in the commercial product often produce conditions which are characteristic of the impurity. During the heating of thio-carbanilid, phenyl mustard oil is liberated and anilin is formed.



Thio-Carbanilid — Phenyl-mustard oil *Toxic* — Anilin *Toxic*

If this heating is done in the presence of sulphur the phenyl mustard oil is converted into mercapto-benzothiozole which is practically non-toxic.

Phenyl mustard oil *Toxic* — Mercapto-benzothiozole *Non-toxic*

If thio-carbanilid was used in pure form and was not subjected to the heat of vulcanization or to the presence of sulphur compounds, very little would be known of it as it is practically non-toxic. However, the complexity of the reactions which take place in the compounding of rubber and the incompleteness of the chemistry of such a compound often produces a point of conjecture. However, we know in this case that there are formed two compounds which are toxic. It has often been shown in the past that many descriptions of a toxic condition as ascribed to a substance as a whole is only caused by one of its constituents.

This is certainly true in this compound known as rubber. Rubber in itself is non-toxic but the average individual has heard of "rubber poison" and any condition that may develop where the diagnosis is not definite is, of course, placed on rubber as a whole. Our experience has shown that practically all toxic conditions that develop can be ascribed to certain ingredients and this condition can be corrected. Often times new compounds are used for the first time in industry and much experimental work must be done with animals in order to get an idea as to its toxicity.

One can readily see that a substance in its pure form may be non-toxic but when placed in a chemical process its reaction products may be toxic and this is true of thio-carbanilid, therefore one cannot disregard the possibility of a toxic condition developing. In this compound two reaction substances must be considered, namely anilin and phenyl mustard oil.

Symptoms of Anilin Absorption

The symptoms of anilin absorption were reported in an article in this journal on September 10, 1929, as follows:

1. Slight insomnia or drowsy feeling.
2. Neuro-vascular symptoms. Flushed face, weariness and mental uncertainty in extreme cases and in some cases an irritable disposition.
3. Headache, dizziness and nausea.
4. Beginning cyanosis, chilliness or cold feeling.
5. Rapid and weak pulse, gradually becoming slower with decreased blood pressure.
6. Loss of appetite, indigestion.
7. Irregularity in breathing.
8. Dryness and choking sensation in the throat, burning and stinging sensation of the eye-lids.
9. Joint pains and muscle pains.
10. Spots before the eyes.
11. Hematuria—rare cases.
12. Painful urination in extreme cases—hyperacidity.
13. Constipation or diarrhea.
14. Skin eruptions—macular—rare cases.
15. Difficulty in talking, with loss of memory.
16. Very deep cyanosis and then unconsciousness.

All patients do not present every symptom but they may have had them at some time. The marked palor of the skin, cyanosis of the lips and the history of the work, together with a characteristic odor which is usually present, should not cause one to hesitate about the diagnosis.

Should any of these symptoms develop, the individual should be removed from contact with the substance and the milling and vulcanizing should be done under a suction hood.

The other reaction product known as phenyl mustard oil is volatilized at the reaction temperature and produces an irritating gas which produces some symptoms.

Effects of Phenyl Mustard Oil

1. Irritation of the eyes.
2. Coryza.
3. Laryngitis with a feeling of strangulation.
4. Bronchitis.
5. Rapid heart.
6. Irritative nephritis.
7. Vesicular dermatitis on hands, arms, face and exposed parts.
8. Toxic anemia. Cases of cyanosis have dveloped and this is due to internal suffocation and a meth-hemaglobin reaction.
9. Pulmonary congestion.
10. Active congestion of the liver, spleen, kidneys and intestinal tract.
11. There is much complaint about aching muscles and joints

and this is due, I believe, to the sulphur radicle and possibly to some absorbed hydrogen and carbon sulphides.

Preventive and Curative Measures

1. Removal of individuals who show any symptoms.
2. Process using thio-carbanilid should be carried out under suction ventilation.
3. Decrease the amount of thio-carbanilid used or substitute some other compound.
4. Frequent examinations.

Experience has shown that with decreased amounts of thio-carbanilid practically all toxic conditions have disappeared except a slight irritative conjunctivitis which occasionally happens in individuals who expose themselves to fumes from certain curing processes. This is later overcome by the individual and he becomes immune so to speak from this temporary irritation. I have observed and examined men who have worked on curing processes where thio-carbanilid has been used in varying amounts, and the chief condition that has been observed has been from phenyl mustard gas and that is usually of the nose and eyes. Occasionally a case of dermatitis develops and this is a vesicular irritative condition which responds very well to treatment.

In a process such as the one involving thio-carbanilid the differentiation must be made between the following:

1. Phenyl mustard gas.
2. Aniline.
3. Carbon bi-sulphide.
4. Hydrogen sulphide.

This differentiation is not difficult. The outstanding symptoms of phenyl mustard gas are its irritative qualities and one should never be poisoned because of this, for its presence is very readily detected.

The predominating symptom of anilin is the cyanosis that develops and its characteristic odor. The sulphides are very readily detected by their characteristic odors and the muscular pains and tired feeling that develops after exposure.

Conclusion

With the advancement of research in the rubber industry and the new developments that are daily being made, the old, original accelerators are being replaced by better and less toxic ones. With the advancement of Safety First procedures and the cooperation of the various factors in industry all industrial hazards should be reduced to a minimum. One must not forget that while the original compound may not be toxic the reaction products may be very toxic and since it is our duty to protect against them we must study each compound and its possible derivatives. Thio-carbanilid, as it is used in industry, is non-toxic, but its disintegrating components are toxic. Proper ventilation and careful instructions will obliterate any possibility of toxic conditions developing.

Rubber Footwear Export Trade Analyzed

THE Rubber Division of the Department of Commerce has recently begun a detailed statistical analysis of the export trade in rubber footwear, to determine more accurately what share of the trade is held by competing countries, their participation in individual markets, and the types of footwear entering into this trade. Facts developed in this study, of interest to the trade, will be published from time to time, in the division's Footwear Exporters News Letter. Along this line, it will be of interest to observe several initial features brought out in a comparison of total exports of the several exporting countries.

In previous considerations of Sweden's export trade in rubber footwear, an item "rubber boots and shoes" was believed to represent the total, but it is now found that beginning with 1928 a new classification was brought out covering rubber-soled footwear (felt and canvas uppers), and this item almost doubles Sweden's export trade.

Some outstanding tendencies in the footwear trade during the past three years have been the continual decline in French exports, the growth of Belgium to a strong position of competitive importance, and the rapid rise of Japanese exports to take first place thus far in 1930. Also of interest is the entry of Czechoslovakia into serious footwear competition during the past two years, although not yet among the leading exporters. The greatest seasonal tendency is shown in the exports of Latvia, which are of little importance in the spring, but greatly increase toward the latter part of the year to give serious competition to Sweden, Germany, and other exporters of waterproof footwear. British Malaya has made important gains in the past year or so, so that now Malayan footwear exports, which are principally canvas rubber-soled, rank among the important.

One feature brought out by the study of rubber footwear exports is the clear seasonal tendency shown when a particular class of footwear predominates. This may be observed in exports to the United Kingdom from the United States and Canada, two countries which separate canvas rubber-soled footwear from rubber boots and shoes. The peak for exports of canvas rubber-soled shoes in each instance comes during the middle of the year, and sharply decreases to relative unimportance in the fall and winter. The curve for rubber boots and shoes, including rubber-soled felt footwear, runs exactly opposite to canvas rubber-soled, although not so pronounced in its seasonal tendency.

BUY NOW—Lots of your plant equipment needs replacements.

RODOS—New Rubber Re-odorants

A NEW line of materials for imparting a pleasing odor to rubber goods has been recently introduced to the industry under the trade names of RODOS, by the R. T. Vanderbilt Company, 230 Park Avenue, New York City. RODO No. 0 is intended to offset the usual familiar rubber odor and leave the finished product practically odorless, while RODO No. 10 is intended to impart a pleasing floral odor to the product.

As Dr. Donald A. Laird pointed out in his article in THE RUBBER AGE, July 10, 1930, the odor of manufactured rubber goods is so usual and commonplace that manufacturers have become accustomed to it. But to the purchaser or user of rubber goods the odor of vulcanized rubber is seldom pleasing and not infrequently offensive. By the proper use of re-odorants, such as RODOS, these rubber products can now be made attractive to the sense of smell.

RODOS are composed of a variety of aromatic materials of the nature of essential oils blended to harmonize with rubber and impart a pleasing smell. The amount of RODO required depends on the ingredients in the stock, the cure and the final odor desired. Based on the total weight of the batch, 4 ounces per hundred pounds is usually sufficient. If the stock is very heavily loaded with pigments and fillers slightly more should be used. If cured in open steam more may be needed; if press cured less may be required; if cured in hot air an intermediate amount is needed.

RODOS, according to their manufacturers, are non-toxic, do not affect the rate of vulcanization or aging, and do not cause discoloration in compounds where they have been tried out. The manufacturers point out, however, that the rubber goods manufacturer, who contemplates using such materials should in every case prove the above points to his own satisfaction.

COlumbus 5-2923 is the new number of THE RUBBER AGE and the Palmerton Publishing Company. COlumbus 5-2923.

Control of Uniformity of Press Cures*

By H. G. BIMMERMAN

E. I. du Pont de Nemours and Company, Rubber Chemicals Division

Abstract

Important points in the setting up and operating of hydraulic presses for laboratory work are noted. Dry steam, properly trapped pipes, drained platens and careful insulation are necessary for accurate work. Instruments for maintaining constant temperatures, as well as types of measuring devices for checking these temperatures are discussed.

THE physical testing committee of the Rubber Division, A. C. S., has made an extensive study, entailing much time and expense, concerning the proper method of securing correct results in the testing of rubber. Milling specifications, detailing the size of batches, gauge, speed and temperature of the rolls, all help to reduce errors due to improper milling. A specified weight for uncured slabs, controlled temperature and humidity conditioning ovens or rooms insure the proper handling of the uncured rubber after milling. Carefully controlled conditions for the handling of cured slabs, as well as standard methods of dieing out samples, give a final stamp of accuracy on the last stage of the testing procedure. Notwithstanding these many precautions, inaccuracies creep in which cause us to wonder why results cannot be duplicated day in and day out. The hydraulic press plays a very important part, and one which does not always receive the attention it should. In our opinion it offers an excellent opportunity for trouble and should receive careful attention. It should be carefully set up and checked if we are to expect accurate results. Especially is this true of multiple platen presses.

The first item to be considered is the quality and source of steam supplied. In order to obtain the best results, dry steam is very desirable. In case the supply line is long and the laboratory is a considerable distance from the power plant, it is often helpful to use a separator to remove the water just ahead of the presses. The line should also be well trapped so that it will not become water logged, or deliver water to the platens.

Piping From the Supply to the Press

A point often overlooked is the piping from the supply to the presses. The fact that steam will pass through is not the only consideration. All lines should be taken off at the top of the supply line and run slightly upward so that any condensate will be delivered back to the supply line and to the trap rather than into the press.

The actual piping of the presses depends somewhat upon the type of equipment. Some manufacturers pipe their presses in parallel, while others are piped in series. For laboratory work the parallel system with an intake manifold located below the platens, so that risers can be taken out at the top and run directly to the platens, is preferred. A bleeder placed at the lowest spot in the manifold prevents any water entering the press. We prefer this system of a separate inlet pipe to each platen with a separate outlet so that the steam will be equally dry in every platen. The series system of piping—in one platen, through it to the next and so on—is advocated at times in order to be sure steam is going through each platen, but this system forces more condensate in each subsequent platen and may cause the last platens to run slightly cooler, whereas, the parallel system recommended above removes the condensate from each platen directly to the trap. The outlet manifold is also located below the platens for obvious reasons. A bleeder is also recommended here as well as the regular trap on the outlet line. If several traps exhaust into the same pipe at different pressures, check valves should be installed on the exhaust side to prevent back pressure interfering with low pressure presses.

The lowest spot on each platen should be determined and a pet-cock bleeder installed. These bleeders should always be kept slightly cracked to insure the platens being clear of water. Drilled platens are easily water logged if there are any low spots and the expense of steam is negligible compared to the expense of inaccurate results.

Care in the Matter of Insulation

Too much care cannot be taken in the matter of insulation, both from an economic standpoint, as well as comfortable and efficient operating conditions. When using multiple platen presses there is a tendency for the top and bottom platens to run colder than the intermediate ones. This is due to radiation losses through the bolster and ram. This can be corrected by the insertion of several sheets of asbestos between the platen and the above mentioned parts. If these precautions are not taken the temperature may be a degree or more different. Often the top or bolster is well insulated so there is little radiation loss here, while the bottom platen rests directly on the ram cap allowing considerable radiation. There have been instances of the temperature between the bottom and center platens of a three-platen press running five degrees Fahrenheit lower than between the top and center due to the ram cap and bottom platen not being insulated. This point is probably as important as any concerning the insulation of presses. The edges of the platens should be well insulated and protected from drafts by shields. In cases where this is not done the outside edges of the slabs are sometimes bloomed, while the centers are non-bloomed showing considerable difference in cure.

A laboratory press must be easily set and maintained at a constant temperature. Pressure or temperature activated controllers are used for this purpose. We have found that when only one controller is used that the pressure may creep up a small amount due to fluctuations in the line supply. If the regulators are working perfectly this should not happen, but we feel that best results are obtained by a

* Paper presented before the New York Group, Rubber Division, A. C. S., October 23, 1930.

combination of pressure and temperature controllers. When the combination is used the pressure regulator is set to deliver a slightly higher pressure than the pressure required on the press and the temperature regulator then set so that the exact temperature is maintained within the platens. This method gives very even temperature regulation and assists in setting the presses quickly. This is quite a factor in the laboratory where the curing temperatures are changed quite often. Another desirable feature of the two regulator control is that the pressure regulator reduces the initial pressure and in this way superheats the steam somewhat reducing the water present.

The location of the sensitive elements for the regulating instruments is more important in the temperature controlled regulator than in the pressure controlled type, since the temperature controlled type must be surrounded by steam for accurate work. Since the pressure controlled type is activated by pressure, it would not be seriously affected by becoming slightly water logged.

Temperature Regulator Bulb

The temperature regulator bulb may be set in either the line just ahead of the intake manifold or in the platens. We prefer to place the bulb in a cross or "T" in the line, so that the steam entering the press carries all the water to the intake manifold where it can be drained away and in this way the bulb is always entirely surrounded by steam, with no opportunity for it to become water logged. The recording thermometer should also be placed in a similar manner running the lower leg of the "T" into the intake line with a 45° ell. This method is more satisfactory than placing the bulbs in a well with a bleeder at the bottom, since the bleeder may become stopped up and allow the well to fill with water, preventing the correct functioning of the regulating devices. There is nothing wrong with placing the bulbs in the platen, except that they are not quite as accessible for replacement or repair as they would be when placed as above and, in the case of drilled platens, there is some opportunity for the bulbs to interfere with the flow of steam. When the bulb is placed in the platen care should be taken to use a small enough bulb so that the flow of steam is not materially restricted. The temperature type of regulator has been found more sensitive than the pressure controller. Some instruments of recent manufacture are so sensitive that they operate every five seconds.

The real test for any system is the uniformity of temperature obtained so that a method of checking should be used that is entirely reliable and accurate. In presses with only a single opening, very little difficulty is experienced as long as the press is kept clear of water and the regulating devices kept in good working order. In presses with two or more openings the temperature between each pair of platens must be carefully checked to see that they are always running the same. We have found that the temperature between the bottom and center platens is usually lower than the temperature between the bottom and center platens on a three-platen press. Sometimes this may be reversed due to poor insulation between the top platen and the bolster of the press. It is advisable to check presses for uniformity of temperature between platens at a low pressure, since they are more sensitive to radiation losses at low pressures than at high ones. There may be a difference of 1° F. at ten pounds, while the temperature will be uniform at sixty pounds steam pressure.

At present, two different methods of measuring temperatures have been found satisfactory by the physical testing committee, Rubber Division, A. C. S. These are by the use of thermocouples or thermometers in the mould or by the use of a thermocouple or a thermometer placed in the center of a steel block, the approximate thickness of the mould. This block is inserted in the press and the pressure so regulated as to give the correct temperature. When using a mercury thermometer placed in the overflow cavity in the mould, or in a well in the mould, care must be taken to see that the thermometer is always inserted to the point for which it is corrected for immersion. If the thermometer is placed too far in the mould, the reading may be as much as 4° F. too high, due to the stem being heated more than it should be under standard conditions. The use of the steel block containing a thermocouple is quite satisfactory within certain limitations. It has one advantage over mercury thermometers when used for checking purposes, and that is, that it can be moved in or out of the press without the heat affecting the stem. On the other hand, it is not quite as accurate as a good mercury thermometer, unless a very high grade and carefully adjusted instrument is used. When using the couple in conjunction with a potentiometer, extreme care must be taken in balancing the circuit in order to determine accurate readings. In the case of the steel block fitted with a high-grade mercury thermometer placed in a mercury well, the temperature can easily be read to within 0.2° F. Here again it is quite necessary to place the block and thermometer in the presses to the same depth each time in order that the stem will not be overheated. There is a slight difference in temperature between the edge of the platen and the center of the platen due to radiation. Ordinarily this difference will not be over 0.9° F. when a thermocouple block, approximately 6" x 6" square by 1" thick is placed first even with the edge of the platen and then in the center of the platen.

Care Essential in Setting Up Presses

In setting the presses it has been found advisable to place a thermometer block between each platen and require the operator to adjust the temperatures to within 0.5° F. between each platen. If the difference is greater the press is logged or improperly insulated and must not be used. If a press is carefully insulated the temperature between the different platens often runs exactly the same. The use of two thermometers practically eliminates any chance of inaccuracy or water logged platens and assures correctly cured stocks.

Our experience has been that too much care cannot be taken in setting up presses. This is especially true in small shops where the pipe-fitters have not had a sufficient experience to appreciate the extreme care necessary to set up a perfect job. A little extra care in the initial set up may save much time and expense in the repeating of work, as well as the trouble and inconvenience of re-piping.

Summarizing, the three important points to be checked in the setting up of presses are circulation, insulation and the correct type of regulators. Perhaps if these are studied a little more carefully we may hear less about irreconcilable results.

Employment Off in November

EMPLOYMENT in the rubber industry continued to fall off slightly during November, according to the most recent figures of the Bureau of Labor Statistics. The following figures show the index numbers of employment and payrolls in the two leading branches of the rubber manufacturing industry for the month of November, with comparisons on the basis of 100 being equal to the monthly average in 1926.

	Employment			Payroll Totals		
	1929	1930		1929	1930	
	Nov.	*Oct.*	*Nov.*	*Nov.*	*Oct.*	*Nov.*
Rubber Boots and Shoes	99.1	75.7	75.9	103.0	64.2	62.3
Auto Tires and Tubes	82.2	69.9	66.4	72.5	59.2	51.5

What is the Outlook for 1931?

(*Continued from page 302*)

developed during the past year. Carbon black production was stimulated to record proportions by reason of the active demand during 1929. The re-adjustment to a radically lower demand is slow and difficult to accomplish. Carbon black production is necessarily a continuous operation, and curtailment presents many serious problems. As a result, warehouse stocks have accumulated steadily during the year, and the market price has gone down to a level unprecedented in many years, and well below cost. This has gradually brought about a more or less general curtailment, so that the present production rate approximates a normal demand. It will require an abnormal demand by the rubber industry next year to make any appreciable inroads on the heavy stocks, and until this develops, the prospects of the industry remain rather discouraging. Under these adverse conditions, it is very much to the credit of the responsible carbon black producers that there has been no tendency to sacrifice quality nor to curtail research work. On the contrary, it is safe to say that the general quality average of the better known brands has been decidedly improved in the past year, and carbon black has become one of the most reliable of rubber ingredients.

Looks for Improvement in Rubber Machinery Field

R. B. Koontz, *president and general manager, The Adamson Machine Company.*

A very remarkable thing about the cessation of business activity during the last year or more has been the very sanguine and optimistic attitude taken by every business man. True enough, we have been anticipating an upward trend for many months only to find that each succeeding month brings no improvement. We truly feel however that we have passed the low point and many things indicate at the present time a slight improvement which seems to be holding its own and increasing somewhat every day. We do not believe there will be any great rush for some little time but we are firm in our convictions that we are on the way up and out, and that 1931 will be a forerunner of an extended period of prosperity.

ALTAX—New Accelerator

A NEW accelerator called Altax has been announced by the R. T. Vanderbilt Company, New York. Altax is essentially composed of benzo-thiazyl-disulphide but may be more commonly called Captax-disulphide. It is a high temperature accelerator for use in any kind or color of rubber goods.

According to its producers, Altax is non-poisonous and fool-proof and supplements Captax in that Altax produces at higher curing temperatures the same results obtained with Captax at lower temperatures. It is recommended for use at temperatures corresponding to steam pressures of 40 pounds per square inch (287° F.-141° C.) or higher.

Compounding of Altax stocks is practically the same as with Captax. It is recommended that a small amount of zinc oxide or litharge be used and that black stocks would be improved by the addition of a fatty acid. From .5% to 2% of Altax with 2.5% to 3.5% of sulphur on the rubber is recommended.

Chicago Rubber Group Meets

THE Chicago Rubber Group held their second meeting of the present season on Friday evening, December 5, in the "Rubber Group Dining Room" of the Auditorium Hotel, Chicago.

The members adopted a constitution. This is probably the first rubber group to place their organization in a permanent form. Following the short business meeting, two papers were presented which were of great interest.

The first paper, presetned by H. G. Bimmerman of the Chemical Laboratory of E. I. duPont de Nemours and Company was on "Sponge Rubber."

F. L. Dawes, of the engineering staff of the Adamson Machine Company, described the construction of the tubing machine and the advantages in its use. The members showed great interest in this paper and Mr. Dawes was called upon to answer many problems confronting the various members.

The Chicago Rubber Group expects to hold their next meeting in February and the program committee promises some very interesting papers.

America's Automotive Industry in 1929

WHILE the production of automotive vehicles during the last twelve months has dropped severely from the high peak of 1929, and represents a decided retreat from the steady advance made by the industry in the last five years, the preliminary census figures, recently reported for the industry during 1929, are nevertheless interesting by way of comparison with the previous census figures of 1927.

Motor vehicles and trailers, shipped and delivered last year by American factories amounted to $3,415,636,810, an increase of 34.1 per cent, as compared with $2,546,807,058 reported for 1927, the last preceding Census of Manufactures year. In addition, the value of parts, accessories, etc., reported by these establishments amounted to $302,359,743, making a total output of $3,717,996,553, an increase of 30.5 per cent over the 1927 total of $2,848,442,843.

Motor Vehicles Manufactured—Number, by Class: 1929

Passenger vehicles (not including public conveyances), classified according to factory value:	
Value up to $500	1,749,178
$501 to $750	1,747,624
$751 to $1,000	416,697
$1,001 to $1,500	301,776
$1,501 to $2,000	93,230
$2,001 to $2,500	23,472
$2,501 to $3,000	13,046
$3,001 and up	11,210
Delivery wagons and trucks (complete vehicles and chassis), classified according to capacity:	
¾-ton or less	173,482
1 ton	145,669
Over 1 to 2½ tons, inclusive	477,551
3 to 4½ tons, inclusive	18,378
5 tons	2,647
Over 5 tons	1,049

Last year's output of motor vehicles and trailers was made up as follows: 4,432,242 passenger vehicles, including chassis, valued at $2,793,166,812; 26,004 public conveyances, $58,127,237; 1,910 government vehicles (Federal, State, county and municipal), etc., $9,875,467; 827,318 commercial vehicles, $544,415,348; 21,055 trailers, $10,051,946.

The statistics for 1929 and 1927 are summarized below. The 1929 figures ar epreliminary and are subject to revision:

Summary for the Industry: 1929 and 1927

	1929	1927	Per cent of increase or decrease (–)
Number of establishments	242	264	–8.3
Wage earners (average for the year)	225,583	187,910	20.0
Wages	$365,660,895	$321,664,093	13.7
Cost of materials, fuel, and purchased electric current	$2,398,318,091	$1,889,426,249	(3)
Products, total value	$3,717,996,553	$2,848,442,843	30.5
Motor vehicles and trailers	$3,415,636,810	$2,546,807,058	34.1
Other products	$302,359,743	$301,635,785	0.2
Value added by manufacture	$1.319,678,462	$959,016,594	(4)

EDITORIAL COMMENT

Re-odorizing Rubber Goods

ONE of the latest and most interesting developments in the rubber goods manufacturing industry is the research now being conducted to eliminate objectionable smells from finished rubber products or give them different and more pleasing odors. Heretofore the manufacturers have not troubled themselves about the smell which has for so long been associated with practically all rubber goods. But lately, the offensiveness of this smell on the part of consumers has been forcibly brought to the attention of the industry, through a survey conducted by the Cramer-Krasselt Advertising Agency, of Milwaukee. Their survey developed the fact that there were only two smells more disliked by the average housewife, namely, human perspiration and garlic.

Such a discovery was a startling surprise to the rubber trade and called for some quick and drastic action. It became immediately apparent to the industry that rubber goods sales were unquestionably suffering as a result of this prejudice on the part of the consuming public. The energetic manner in which the industry proceeded to tackle the problem speaks well for the degree of foresight and ingenuity which the industry can exercise when up against a serious problem.

The task of de-odorizing rubber goods was not a simple one, however, as the objectionable smells of the finished products were largely developed in the fabricating processes and did not come from the actual raw rubber itself. The problem has now resolved itself into one of *re-odorizing* rather than de-odorizing. The research efforts of the manufacturers have determined that it is now simpler to add an aromatic agent in the compounding process, which will give the rubber product a pleasing smell than to attempt to kill the old odor. It is a case of replacing the offensive smell with a pleasing one.

THE RUBBER AGE was very glad to have had the opportunity of giving early publicity to this problem in its issue of July 10, 1930. The article, which was contributed by Dr. Donald A. Laird, of Colgate University, one of the pioneers in this research problem, attracted considerable attention. The New York group of the Rubber Division, A. C. S., invited Dr. Laird to speak before it, at its meeting early this month. The interest in the subject has extended to several of the chemical companies which supply the industry, and new re-odorizing materials are now being offered to the industry.

The subject of re-odorizing rubber goods is one which can well be studied carefully by every company in the manufacturing industry. Now that the objectionableness of rubber smell is established, the far-sighted manufacturer will not hesitate long in applying this new development to his own rubber products.

A Bad Year Ends—What Promises 1931?

THE chief topic of conversation in commercial circles today continues to be the present business depression. The hopes of a rapid revival in trade have not yet materialized. But with the ending of the old year it is but natural to look with renewed optimism towards the incoming twelve months. Expressions of opinion as to the outlook for the next year from the various leaders of business associated with the rubber industry are published elsewhere in this issue of THE RUBBER AGE, and all contain a note of confidence in the future. And there are fair grounds to warrant such hopefulness.

Business conditions, according to the Conference of Statisticians in Industry, are beginning to revolve around the volume of seasonal consumer purchasing. Its extent is viewed as the indicator of a possible revival in the near future, for the reserve buying power of the population is now the most important immediate force at hand to start an upturn.

The possibility of an upturn in the next few months will depend upon how much further Christmas buying will diminish available stocks of commodities and also upon the success that may attend automobile shows and projected advertising.

Automobiles produced in November in the United States and Canada are estimated to have been 132,000, declining 15 per cent under the number of passenger cars and trucks manufactured in October. Output for the first eleven months of the year was 39 per cent below what it was for the same period in 1929. Shipments of pneumatic casings for the first ten months of this year exceeded production by 4.3 per cent. Inventories on hand October 31st amounted to 9,802,687 casings as against 9,811,764 on hand September 30th.

These are the facts surrounding the condition of the industry at the closing weeks of 1930. What promises for an improvement does 1931 hold?

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General Manager.....PETER P. PINTO
Managing Editor.....J. P. BUSHNELL
Assistant Editor.....T. H. DAVISON
Circulation Manager.....A. M. SMITH

Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

GOODYEAR TO OPEN 1931 BY INCREASING OUTPUT

Announcement has been made by P. W. Litchfield, president of the Goodyear Tire & Rubber Company, that beginning January 5 the factory would revert to an eight-hour day basis five days a week. This will permit a substantial increase in production without hiring additional men and give practically full time employment to Goodyear employes who have been working short time for several months. It is not likely that any additional men will be hired for some months to come, it was stated.

The plant is now working four six-hour shifts a day, and since July has been rotating jobs in order to keep as many of its experienced men on the payroll as possible. Goodyear officials state that through the device of dividing up the work among a larger number of men, they have kept together an efficient working force and estimate that during the last several months have held on the payroll more than 2,500 experienced tire workers who otherwise would have had to be laid off.

Despite general business conditions, Goodyear production at Akron at its low peak reached 30,000 tires a day—a production figure that a decade ago was the high peak. The change of hours effective after the first of the year will increase the tire ticket to 48,000 tires a day and 55,000 tubes.

It was stated that it is the desire of the Goodyear management to even off the peaks of employment as far as possible by slightly lengthening or decreasing the hours per day. The five-day week will permit the doing away with all Sunday work except emergency tasks.

Inventories of finished products are in more favorable position than a year ago and as low as they have been in several years compared to the volume of business. The upturn of production reflects the expected revival in demand for replacement tires as indicated by spring dating orders.

SHIPMENTS FROM CEYLON SHOW SHARP DECREASE

Shipments of crude rubber from Ceylon during November totaled 6,275 tons, as compared with 7,605 tons in October, according to cables to the Rubber Exchange.

Shipments from Ceylon to the United States last month were 3,730 tons, as compared with 4,759 tons in the previous month, while 1,297 tons went to the United Kingdom during November, as compared with 1,513 tons in the preceding month.

Rubber Association Meeting

The annual meeting of the Rubber Manufacturers Association, Inc., will be held at the Commodore Hotel, New York City, on January 5 at 10:30 A. M. An elaborate entertainment program is being arranged for the annual dinner of the association, which will be held at 7 P. M. on the same day in the grand ballroom of the hotel.

Exchange Members Liquidating

Three prominent members of the Rubber Exchange of New York are liquidating their assets or retiring from the rubber business. The F. R. Henderson Corporation, headed by Francis R. Henderson, president of the exchange for four years, has closed its offices at 89 Broad Street and is withdrawing from the crude rubber trade. The J. Frank Dunbar Company, Inc., 115 Broad Street, and Henry Gardner, Guiterman & Company, Inc., 120 Broadway, are both in process of liquidation.

CONVERSE ORDERS GAIN; FINANCIAL POSITION GOOD

Orders for future shipments by the Converse Rubber Company, Malden, Mass., are in excess of those on hand in previous years. The financial position of the company is shown to be satisfactory by a recent audit.

"The regular periodical audit of the affairs of the Converse Rubber Company has been completed by the company's auditors, Peat, Marwick, Mitchell & Company," says F. R. Allen, treasurer. "The auditor's report shows the company to be in excellent financial condition, with capital and surplus in excess of $2,000,000. Net working capital is in excess of $1,000,000 at the peak of the company's borrowing season, and cash and receivables, including only those maturing within 30 days, are in excess of all liabilities.

"The operations of the period show a satisfactory profit after charging off depreciation at the rate of over $100,000 per annum, and marking down all inventories to the basis of cost or market value, whichever was the lower."

There has been no further trace found of Mitchell B. Kaufman, president of the company, who disappeared while hunting in the Maine woods on November 5, despite the offer of a $10,000 reward for his discovery, dead or alive.

FIRESTONE RECALLS MEN; NOVEMBER PROFITS GAIN

From 750 to 1,000 former factory workers of the Firestone Tire & Rubber Company have been notified to return to their jobs, according to a recent announcement. The men were chosen carefully from employes who were laid off during the year, and the opportunity to return to work comes not as the direct result of increased pressure of business at the shops, officials of the company admitted, but simply through efforts to relieve unemployment.

It was made clear that no vacancies exist in any of the departments and employment offices will not hire applicants for jobs. The 750 or more chosen have been selected by Firestone investigators and in each instance the test was whether or not the former employe still lived in the city, maintained a home and had no other job.

Harvey S. Firestone reported profits for November of this year were $650,000, as compared to $33,000 in November of last year, at the annual meeting of the Firestone Tire & Rubber Company at Akron, December 15.

Mr. Firestone said that early in January the daily hours of employment will be increased and the plant will attain "a normal capacity" before the end of the winter.

Mr. Firestone pointed out that wide discrepancy between November's profits last year against those this year was caused by automobile manufacturers this year ordering their year's requirements in that month while last year the usual automobile orders had not been received.

ARCHER RUBBER COMPANY INSURES ITS EMPLOYES

Three hundred and seventy-two employes of the Archer Rubber Company, Milford, Mass., have recently been covered with group life insurance through a policy issued by the Prudential Insurance Company of America. The total amount of the policy involved is $430,000.

The workers are insured in amounts ranging from $1,000 to $4,000, according to the rank or position held, and the policy is of the contributory type, the employes sharing with the employing company in the payment of the premiums.

COlumbus 5-2923 is the new number of THE RUBBER AGE and the Palmerton Publishing Company. COlumbus 5-2923.

TIRE DEALERS ORGANIZE FOR PROTEST MEETING

Automobile tire dealers from New York, New Jersey and Connecticut will be organized on January 7 at a meeting in the Hotel Pennsylvania, New York City, to protest against the competition they are receiving from gasoline stations selling tires and those tire manufacturers operating their own retail outlets. The Greater New York Tire Dealers' Association is sponsoring this tri-state tire dealers convention and has been assured that close to 1,000 independent tire merchants will be in attendance.

Competition from gasoline filling stations and chain stores, particularly in the smaller communities, has proved a serious factor to the retail tire dealer and it is announced that the purpose of the January convention is to determine upon some co-operative measures being adopted by the independents to protect their business interests.

L. A. Brown, president of the New York Tire Dealers' Association and a director in the National Tire Dealers' Association, declares that some concerted action must be taken by the independent retail tire man if he expects to make any worthwhile profits through his 1931 operations.

"Not only are the tire dealers in these three states handicapped because of intense competition from sources which a few years ago were foreign to the tire business," he said, "but there are quite a few trade practices in the tire industry which have done much to make the tire business less attractive to a real merchandiser. It is the purpose of our convention to bring out sentiment of the tire dealers in this section of the country towards various trade practices that have been harmful to their interests.

"Talks will be made by leading tire executives who have made a study of present day tire merchandising practices and who are in a position to understand our status in the industry. Aside from the question of competition, the delegates to the convention will consider the advantages of elaborating on their activities to provide for a more diversified service to the motoring public."

William J. Kelly

William J. Kelly, retired rubber importer and member of the Rubber Control Commission during the World War, died November 30 at his home, 340 Riverside Drive, New York City. He was vice-president of Poel & Kelly, Inc., 347 Madison Avenue, when he retired three years ago and was a charter member of the New England Rubber Club, later the Rubber Association of America, and a governor of the latter organization. He was 69 years old at the time of his death.

Kleinert Dividend Reduced

The I. B. Kleinert Rubber Company paid a quarterly dividend of 25 cents a share on its common stock on December 1. This effects a cut in the annual dividend rate to $1 a share from $1.60 a share previously.

Fidelity Tire Now Denman

In conjunction with its policy of manufacturing an all Denman line of tires, the Fidelity Tire & Rubber Company, Warren, O., changed its corporate name last month to the Denman Tire & Rubber Company. The officers and organization remain unchanged.

GENERAL ELECTRIC FORMS NEW PLASTIC DEPARTMENT

The various plastic activities of the General Electric Company have been coordinated into one department known as the Plastic Department, according to an announcement by Gerard Swope, president of the company. R. E. Coleman has been appointed manager of the new department with an advisory committee consisting of Vice-Presidents J. G. Barry, chairman, W. R. Burrows, and C. E. Eveleth.

The new department will be responsible for sales, engineering and manufacturing of plastics and involves activities at the Pittsfield, Schenectady, Fort Wayne, Erie and Lynn (River) plants of the company.

PHILLIPS-BAKER INSURES ITS FACTORY EMPLOYES

Three hundred and seventy-three eligible employes of the Phillips-Baker Rubber Company, manufacturers of rubber and canvas footwear, at Providence, R. I., have been covered with group life insurance protection through a policy issued by the Prudential Insurance Company of America. The total amount of the policy involved is $390,000.

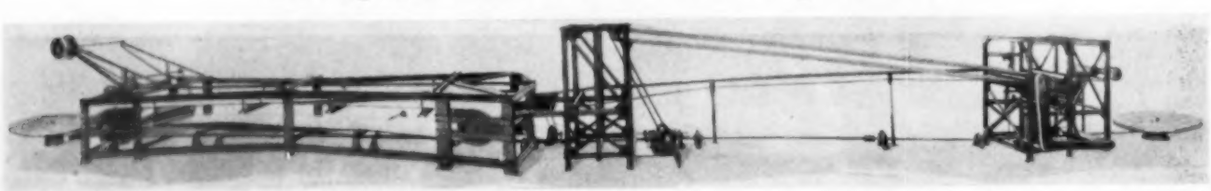
Under the provisions of this arrangement, each member is insured in amounts ranging from $1,000 to $3,000, according to the rank or position held, and the policy is of the contributory type, with the employes themselves paying a part of the premiums, while the company, as a manifestation of its interest in their employes' welfare, bears the remainder of the cost.

Rubber Stocks Are Lower

Several rubber manufacturing company stocks made new lows for 1930 or longer during the fortnight. The entire list was generally weaker, closing on December 18 as follows:

	Last Price		—1930—	
	Dec. 18	Dec. 4	High	Low
Aetna	—	—	8½	3½
Ajax	⅝	½	2½	¼
Dayton "A"	—	—	81	50
Amer. Hard Rubber	—	—	3⅞	3¾
Falls	—	—	4¾	1
Faultless	35	—	37	32½
Firestone	18¼	18⅜	33¼	15⅝
do. 6% pfd.	—	67	87⅞	53⅝
Fisk	½	1	5½	½
do. 1st pfd.	1⅝	2⅝	21	1½
General	—	—	163	99
do. pfd.	—	—	91	83½
Goodrich	17¼	19⅜	58½	15¼
do. pfd.	65	—	104½	63⅛
Goodyear	47	48¾	96⅞	35¼
do. 1st pfd.	80¾	87½	102	78¼
India	12	—	25½	8½
Intercontinental	1⅞	1½	7½	1½
Kelly-Sprinfield	1¼	2	6⅛	1¼
do. 6% pfd.	29½	—	39	27
Lee	3¼	3¾	11	3⅛
Mohawk	5½	—	16⅝	5
do. pfd.	—	—	55	15
Norwalk	⅝	¾	4	½
Pirelli	—	38	50⅞	34¼
Raybestos-Manhattan	19	22	58⅞	16⅞
Seiberling	5	5½	18½	4
do. pfd.	—	—	78	30
U. S. Rubber	13¼	14¼	34	11
do. pfd.	22½	26	63⅞	19½

New Spadone Continuous Hose Making Machine



THE illustration above shows the Spadone Continuous Hose Making Machine announced recently by the Spadone Machine Company, Inc., 15 Park Row, New York City.

This machine is an entirely new and different type for making wrapped garden hose, water, pneumatic hose, small diameter C. I. tubings, and the like, in continuous lengths without the aid of a mandrel.

The tube is first run in a long length of 500 feet and arranged on a revolving pan at one end of the machine. The duck is cut on the bias and spliced end to end in a continuous roll, and also arranged at one end of the machine, so that the tube and duck can be fed simultaneously through the machine. In the course of its progress, the duck is rolled about the tube and ejected from the machine on a revolving pan at the opposite end. The hose is then passed through a covering machine preparatory to its being cured in a long length by means of the lead covering or curing process.

The speed of the machine is variable, but a normal production would be at least 50 feet per minute.

The machine produces an excellent appearing product which, quality for quality, is superior in hydrostatic and friction test to hose made by the older method or on a mandrel.

The floor space and power requirements are considerably less by comparison with pole made hose, and the savings effected in this as well as in labor and materials are all of very marked proportions.

Names in the News

HORACE R. BAKER, advertising manager of the Firestone Tire & Rubber Company, has resigned that position, and his duties have been taken over by FRANK K. STARBIRD, who previously had held the post. Mr. Baker in recent years has been advertising manager of the Miller Rubber Company and vice-president of the Gardner Advertising Company.

C. S. CHING, director of industrial and public relations of the United States Rubber Company, is scheduled to speak on February 4 before the Public Relations Division of the American Management Association at Niagara Falls, N. Y. His subject will be "The Public Relations Aspect of Employe Relations."

HARVEY S. FIRESTONE, president of the Firestone Tire & Rubber Company, P. W. LITCHFIELD, president of the Goodyear Tire & Rubber Company, WILLIAM O'NEIL, president of the General Tire & Rubber Company, and JAMES D. TEW, president of the B. F. Goodrich Company, addressed a public meeting at the Akron Armory December 17 on the needs of that city in street construction and grade elimination. The meeting was sponsored by the Akron Chamber of Commerce.

W. E. DAUNT has been appointed manager of the new Goodrich Silvertown, Inc., service station in Youngstown, O., which opened December 6. Mr. Daunt was manager of the truck tire division of the Republic Rubber Company for many years, during which time he obtained 12 patents on tire building. In 1920, he went with the B. F. Goodrich Company, resigning in 1928 to form the Daunt Tire Company, Inc., which he sold to the Goodrich company last February.

FREDERICK LYONS, United States commercial attache at Athens, addressed the Akron Chamber of Commerce on December 9 on the subject of the market for Akron products in Greece. He stated that even now from 85 to 90 per cent of the tires used in Greece are imported from the United States.

RALPH H. MINER, tax counselor for the Goodyear Tire & Rubber Company, was a speaker before the Cleveland Chamber of Commerce at a luncheon meeting on December 10. He discussed the effects of Ohio's proposed tax legislation on the businesses of Cleveland.

CARL FICKES, second in command of the airship fleet of the Goodyear Tire & Rubber Company, is now in Phoenix, Arizona, investigating the possibilities for establishing a blimp hangar in that city. Mr. Fickes will continue to Los Angeles, where the 1931 blimp coastal operations will be discussed.

DR. RUSSELL WILL EDIT VANDERBILT MAGAZINE

Dr. William Fraser Russell, of Norwalk, Conn., has resigned as chief chemist of the Norwalk Tire & Rubber Company to join the staff of the R. T. Vanderbilt Company, 230 Park Avenue, New York City. The rubber department of that company under the managership of Dr. A. A. Somerville has planned the publication of a monthly magazine, *The Vanderbilt News*, intended to tell the story of work done in its own laboratory. Dr. Russell has been engaged as editor of this magazine and will give the work his full time.

Born July 16, 1887, in Glasgow, Scotland, Dr. Russell became Associate in Chemistry, Royal Technical College, Glasgow, 1908; Associate of the Institute of Chemistry of Great Britain and Ireland, 1908; Ph. D., Chemistry, at University of Jena, Thuringia, Germany, 1910. He worked with the Diamond Rubber Company, Akron, O., as a research chemist from 1910 to 1913 and in a similar capacity for the B. F. Goodrich Company for another year. In 1914, Dr. Russell became chief chemist of the Norwalk Tire & Rubber Company, Norwalk, Conn., a position which he has held since that time. Since 1928 he has also acted as a director and secretary of the company.

Dr. Russell is the author of numerous rubber papers and patents on accelerators, improvements in rubber vulcanization and overcoming of variability in raw rubber. He is a member of the American Chemical Society, the Institute of Chemistry of Great Britain and Ireland, and the Norwalk Country Club.

CURTIS L. MOODY is now in charge of production at the United States Rubber Company plant at Detroit, Mich. Mr. Moody was general superintendent of the Fisk Rubber Company factory at Chicopee Falls, Mass., until he resigned last August to take a similar position with the Dominion Rubber Company, the Canadian subsidiary of the United States Rubber Company.

HARVEY S. FIRESTONE, president of the Firestone Tire & Rubber Company, and Mrs. Firestone were guests on December 9 at a dinner given at Washington, D. C., by VICE PRESIDENT CURTIS at which PRESIDENT and MRS. HOOVER were the guests of honor.

ELLIS L. MANNING, of the research laboratory of the General Electric Company, Schenectady, N. Y., spoke on December 12 before the supervisory force of the B. F. Goodrich Company at the Perkins School in Akron. His subject was "Research and Industry."

E. A. OBERLIN, president of the Firestone Park Trust & Savings Bank of Akron, and HARVEY H. HOLLINGER, comptroller of the Firestone Tire & Rubber Company, were elected directors of the latter organization at its annual meeting December 15. They succeed LEE R. JACKSON, vice-president in charge of sales, and CARMON A. MYERS, former Firestone chief engineer, who is now in California.

W. E. POWELL, of the drug sundries department of the B. F. Goodrich Company, will fly to Milwaukee, Wis., in the company's "Miss Silvertown" plane to deliver two of the prizes awarded in the Goodrich nation-wide display and sales contest. Editors of druggists' magazines were judges in the contest, in which $7,200 in prizes was won by 32 drug stores throughout the country.

CLIFFORD W. HENDERSON, general manager of the National Air Races, was in Akron on December 6 and 7 as the guest of B. M. ROBINSON, assistant secretary of the Firestone Tire & Rubber Company. Mr. Henderson is making a tour of the eastern states to determine where next year's races will be held.

E. B. MILLAR, cost accountant of the United States Rubber Company, spoke last month before the Business Control Methods Association at the Chamber of Commerce Building, Boston, Mass. His subject was "Standard Costs."

ARTHUR E. RUSS, formerly of the Woonsocket Rayon Company, Woonsocket, R. I., and previously in charge of the technical control laboratory of the Manville Jenckes Company, Pawtucket, R. I., is now the representative of the Henry L. Scott Company, Providence, R. I., manufacturer of testing equipment, in New York City and adjacent territory. His headquarters will be temporarily at the Chemists Club, New York City.

L. O. GUINTHER, of the aeronautical department of the Goodyear Tire & Rubber Company, addressed members of the Lions Club of Akron on December 10 on the subject of aircraft development. He related incidents of his recent nation-wide tour of airports and aeronautical factories.

FRANK KOVACS, production manager of the Seiberling Rubber Company, Akron, O., has resigned his position with that company to become associated with the Thiokol Corporation, Yardville, N. J., as manager of the sales and new development departments. He assumed the duties of his new position on December 15. The Thiokol Corporation is manufacturing in crude sheet form a material with the characteristics of crude rubber.

Rubber News Around the World

VICEROY RUBBER PASSES INTO CANADIAN CONTROL

The Viceroy Manufacturing Company, Ltd., Toronto, Ont., which was organized in September to take over the business of the Canadian I. T. S. Rubber Company, Ltd., has as a result of its new financing become 90 per cent Canadian in ownership. It was formerly controlled by United States interests.

Organized in 1918 for the distribution of the I. T. S. rubber heel, the company soon afterward decided to do its own manufacturing and has since expanded into the production of a variety of other rubber items which were previously supplied to Canada entirely through imports. During the business slump of 1920-21 the factory was operating at a greatly decreased capacity and the management decided upon a policy of expansion into other lines. Having decided to manufacture lines which would not be competitive with other domestic manufacturers they established a research department and gradually brought to the stage of production various items which were difficult to manufacture by reason of their specialized processes.

The fact that these items, which were formerly not manufactured in Canada, have not only been successfully manufactured but also profitably and widely marketed not only on the domestic market but also through an ever-increasing export trade, is a credit to the company from the standpoint of cutting down importations into Canada and building up a new Canadian industry.

In the latter part of 1921 rubber erasers were perfected to compete with the imported article. In 1923 rubber bands were successfully introduced. In 1924 cushion rubber (blown or sponge rubber) was added to the items of production. In 1925 they started the manufacture of vulcanized rubber battery boxes for motor cars which item quickly displaced the formerly used wooden container. In 1927 the company introduced hard rubber toilet sets and in 1928 children's play balls, the bulk of which had been imported.

CATALPO
for
Cushion Stocks

Rubber Institution Meetings

Members of the London Section of the Institution of the Rubber Industry will meet on January 5 at the Arts Theatre Club in that city to hear a paper on "Difficulties in the Manufacture of Mechanical Goods" by G. H. Burton and J. Quartley. On January 7, the Midland Section will meet at the Grand Hotel, Birmingham, at which time G. Rae will read a paper on "The World's Rubber Supplies."

BRITISH GOODRICH HAS NET PROFIT OF £88,124

The British Goodrich Rubber Co., controlled by B. F. Goodrich Co., reports for year ended September 30, 1930, net profit of £88,124 after charges compared with £92,969 in previous fiscal year. Common dividend was 5% against 4%.

Despite abnormal trade depression, the directors report that material progress has been made during the past year. It has been considered prudent to create a general reserve of £15,000 and a special contingencies fund of £10,000.

RUBBER & GUTTA PERCHA SHOWS LOSS OF £95,978

A big slump in revenue is shown in the report of the India Rubber, Gutta Percha and Telegraph Works Co., Ltd., manufacturers of tires, cables and other rubber goods, for the year to August 31, 1930.

The gross profit of £96,702, which is the lowest obtained for many years, compares with £208,396 in the previous period. Against this has been charged general expenses, £126,917, debenture interest, £23,944, bad debts and fees, £2,801, and depreciation, £39,017, leaving a net loss of £95,978, against a net profit of £22,828 last year.

After crediting the surplus from the previous year, and allowing for the preference dividend to July 1 last, there is a debit of £72,162 to go forward. From the net profit of 1928-29 a dividend of 2½ per cent, free of tax, absorbing £18,750, was paid, and a credit balance of £34,233 was carried forward.

The directors, commenting on the disappointing results of the year's trading, say that the results are, in great measure, the outcome of conditions which are still abnormal. A very large proportion of the loss is due to the writing down of raw materials and stocks consistent with values at present ruling.

The directors add that in the present circumstances they cannot sanction the payment of the preference dividend, due on January 1, but they are satisfied that the steps now being taken have materially improved the company's prospects.

FRENCH RUBBER TARIFF INCREASE IS PLANNED

For the last week of October and the first half of November, French purchases of rubber were abnormally high, due to the anticipation of a new duty on foreign rubber imports. This proposal has been temporarily shelved, but it is stated that a rubber imports bill awaits discussion in the Chamber of Deputies which proposes an all-around tax of 60 centimes per kilogram on rubber arriving in France.

Opposition to such a tax has quickly come forward, the suggested impost being 120 times the duty on wool. It is confidently expected that a compromise will be arrived at when the Chamber deals with the bill, which has been framed as a result of the deliberations of a committee of technical experts. French rubber requirements are now satisfied for a considerable time ahead and the buyers are not lamenting their bargains, for there has been no material weakening of the price since it was helped by their orders.

The agitation for a higher tariff has been led by Octave Homberg, honorary president of the Syndicate of French Rubber Planters, while the tire manufacturers are recommending help for the Indo-Chinese planters through government subventions, rather than an import duty. The French press is inclined to favor the planters, *Le Commerce* of Paris, for example, declaring that "our colonies can easily produce the 40,000 tons necessary for our annual requirements."

DISCOUNTS AND DUMPING HIT GERMAN TIRE TRADE

The situation of the tire trade in Germany has been chaotic in the last few months. It is charged that tire companies have been giving dealers heavy discounts below their ordinary list prices, ranging from 25 to 35 per cent, and that export sales have been in many cases at not more than 50 per cent of the list prices. Furthermore, it is common knowledge that large consumers of tires have been obtaining them from dealers with special customer discounts of from 12 to 30 per cent below retail prices. Such tire users include large industrial concerns, omnibus companies, taxi companies, department stores and others.

The situation is further complicated by the action of certain firms, in particular Michelin, in dumping upon the German market a large quantity of regular tires, but listed as "seconds," and at correspondingly lower prices. This action has been in the form of a disguised price cut and gives further support to the contention of the Government that present list prices are too high.

Rubber Goods and Specialties

Thermoid Radiator Plug

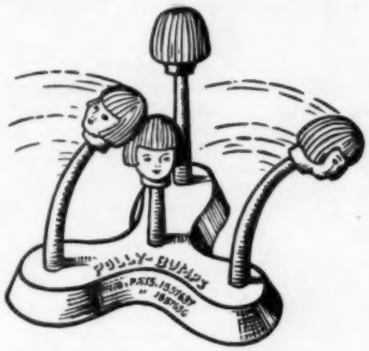
The Thermoid Rubber Company, Trenton, N. J., has acquired the patent rights to a rubber plug, which is said to simplify greatly the testing of a radiator core for leaks. The purpose of the plug, according to the manufacturer, is to close temporarily the openings of the radiator while it is being

filled with compressed air. The radiator is then immersed in a tank of water, and the presence of leaks is detected by the escape of air, the principle being the same as used for the testing of an inner tube. The Thermoid plug is built with a collar or flange which, while elastic enough to permit the plug being drawn over the inlet or outlet tube, grips tighlty about the neck of the opening, thus keeping the plug firmly in place.

Mecca Sport Shoe

The Mecca is a new shoe for sports wear introduced by the Firestone Footwear Company, 141 Brookline Avenue, Boston, Mass. Suitable for gymnasium and general use, it is made in white, suntan or brown heavy enameline duck backed with sheeting. It

carries an insole of tan napped sheeting, durable grey cut-out effect sole of special design, fine knurled toe cap, suntan toe bumper of vertical rib design. It is made in women's sizes as well as men's and boys', The white duck has black trimmings, toe cap and dual foxing. The suntan duck has suntan trimmings, toe cap and black dual foxing. The brown duck has grey trimmings, toe cap and black dual foxing. All the shoes have the suntan vertical rib toe bumper.



Rubber Teething Toy

"The only teething toy with action" is the way the Gillette Rubber Company, Eau Claire, Wis., describes its newly announced Polly-Bumps. The four heads of the toy are of hard rubber, such as a teething ring, so that the baby may bite and play. The color is molded in so that it can not come off in the mouth. By bumping one head, they all will bump, dance and twirl. The toy may be washed, making it sanitary. It may be strapped to the table or high chair, but is equally valuable in keeping the child entertained while travelling.

Self-Vulcanizing Compound

A new rubber compound known as "Covulc," made by the Hitchcock Company, 48 Pearl Street, Boston, Mass., makes possible the resurfacing of conveyor belts and lining chutes, hoppers, agitators, and other equipment. A soft, plastic rubber compound made in various colors, this is applied to a surface in the form of a paste and rapidly vulcanizes itself when exposed to the air. After vulcanizing, it is claimed that it remains soft and flexible during its life. The material is also available in the form of sheets already vulcanized to a fabric or wire-mesh base. In this form, it may be cut to any size desired for lining chutes or hoppers. Either form is easily applied, the manufacturer states. In repairing a conveyor belt, for example, the cleaned belt is brushed with a special cleaning fluid, coated with a rubber solution, after which the plastic rubber is applied with a spatula or putty knife and smoothed with a glass roller. The material is reported to vulcanize sufficiently within about three hours, and under hot and dry conditions in even less time.

Balloon Sales Carton

The Wooster Rubber Company, Wooster, O., has just brought out an attractive set-up carton in colors, containing six 10-cent novelty balloons, and which is selling exceptionally well at a price of 50 cents for the set. The company's well known alligator, turkey and dirigible models are included in the assortment.

Siph-O Vac-U-Cups

The Siph-O Products Corporation, 60 India Street, Boston, Mass., is the manufacturer of Siph-O Vac-U-Cups which tend to act as floor levelers and also to protect the floor or the floor covering from marring by furniture feet. These cups are molded of resilient rubber and so cut out on the

bottom that when pressure is applied to the top a ring vacuum is formed that prevents slipping and scratching. This cupped vacuum also absorbs vibration and tends to eliminate noises. These rubber furniture feet, according to the manufacturer, have been successfully used for radio sets, electric refrigerators, washing machines, sewing machines and other household appliances.

Royal Heat Resisting Tube

In the Royal Heat Resisting inner tube, the United States Rubber Company, 1790 Broadway, New York City, is offering a tube which is claimed to hold its tensile strength against deterioration due to heat. Neutral grey is its natural color, and, because tests showed that in its natural color this heat resisting stock gave the best results, this neutral grey has been retained.

The United States Rubber Company has revised its inner tube line by the elimination of all of the old style tubes—U. S. Royal Red, U. S. Royal Grey, U. S. Royal Master and the old Peerless and Traxion lines. The U. S. Puncture Sealing tube will be continued and the line completed by the addition of the new Royal Heat Resisting tube and a new Peerless tube in red. Sizes are being grouped so that one tube will fit a number of sizes of tires, making it possible for a dealer to reduce his stock from 140 items in the tube line to only 41 under the new system.

Current Crude Rubber Items

INDIAN RUBBER ACREAGE INCREASED DURING 1929

In India rubber is grown mainly in Southern India and Burma, and according to statistics issued recently by the Department of Commercial Intelligence and Statistics, Calcutta, the number of plantations in 1929 was 3,390, covering an area of 252,767 acres. The total area actually under rubber was 170,906 acres, which showed an increase of 3,848 acres over the total for 1928, and of this area 53 per cent was in Burma, 30 per cent in Travancore, 9 per cent in Madras, 6 per cent in Cochin, and 2 per cent in Coorg and Mysore.

The total production of raw rubber last year was reported as 28,022,842 lbs., as compared with 26,839,332 lbs. in 1928. The increase in production was general, except in Madras, which showed a decline of about 8 per cent. Exports of rubber by sea from India during 1929-30 aggregated 25,700,000 lbs., which was almost the same quantity as in the previous fiscal year. The United Kingdom took 46 per cent of the total shipments, 23 per cent went to Ceylon, and 21 per cent to the Straits Settlements. Purchases by the United States accounted for only 6 per cent of the exports.

Remilling Plants in N. E. I.

There were 42 rubber remilling factories operating in the Netherlands East Indies in 1929, working with a total of 199 remilling machines, and possessing an annual capacity of 50,192 metric tons of rubber. The actual output of these mills during the year was 20,343 metric tons, as compared with 12,717 tons in 1928 and 10,075 in 1927. The number of mills actually working varied throughout the year in different months from a low of 25 in November to a high of 35 in March.

Britain Uses More Rubber

Not all of the heavy October European takings of rubber went to the Continental countries. While Russia and France were heavy buyers, it appears that 10,689 tons were withdrawn from London and Liverpool warehouses for domestic manufacturers (or for unreported stocks) in the United Kingdom during October. This compares with 6,616 tons in October, 1929. British consumption in the first ten months of 1930 is figured at 64,798 tons, in contrast with 58,049 tons for the same period of 1929.

BRITISH RUBBER IMPORTS LOWER DURING NOVEMBER

Imports of crude rubber into Great Britain during November amounted to 313,563 centals, as compared with 379,468 centals in October, according to the British Board of Trade rubber report.

Exports from Great Britain last month were 319,156 centals, against 175,742 centals in the previous month. Of this total, 1,008 centals were shipped to the United States, as compared with 816 centals similarly shipped in October.

MALAYA DEALERS' STOCKS DECLINED LAST MONTH

Dealers' stocks of crude rubber held in the Far East last month showed an increase of 2,462 tons over the previous month, according to cables received by the Rubber Exchange of New York. Stocks on hand November 30, totaled 37,658 tons, as compared with 35,196 tons in October, and 37,185 tons in September.

Harbor board stocks at Singapore and Penang totaled 4,016 tons, a decrese of 718 tons from the previous month.

NEW CONTRACT ADOPTED BY RUBBER EXCHANGE

A new form of rubber contract, raising the tonnage, increasing grade specifications and embodying a number of other important revisions of the present "A" terms, was adopted almost unanimously on December 15 by the members of the Rubber Exchange of New York.

Trading in the new "A" contract will be inaugurated on January 5, 1931, for deliveries February 2 and thereafter, and will be dealt in along with the old "A" contract as well as the No. 1 standard terms, which calls for certificated deliveries. The old "A" form of trading, however, will be permitted to embrace only those months now listed, and the contract, which has been in force ever since the exchange was opened in 1926, will be permitted to expire at the end of the year.

Under the revised "A" contract delivery will call for 10 tons, instead of 2½ as at present; fluctuations of one one-hundredths of 1c per pound, instead of one-tenth, making it the same as the No. 1 standard contract in those respects, and embody reductions in the scale of commission rates.

Delivery up to 22,400 pounds is to be made up of any one of the following grades: No. 1 ribbed smoked sheets; No. 1 thin crepe; No. 2 thin crepe, thick crepe and ribbed smoke crepe; No. 3 ribbed smoked sheets; No. 4 ribbed smoked sheets, and No. 5 ribbed smoked sheets.

The members also approved amendments to the by-laws deleting the charge for interest on original margin requirements, additional provisions for suspension or expulsion of members ,and disposition of proceeds from the sale of membership rights.

Malayan Remillers Close

The remilling plants of Chin Sheng Hang at Singapore have been closed down. This firm has two plants with a total of 88 mangles and has ranked second only to Tan Kah Kee. It is also reported that the Chee Song Rubber Company, a remiller with one plant and 20 mangles, has likewise closed down.

Closing Prices on Rubber Exchange of New York, Inc.

FROM DECEMBER 4 TO DECEMBER 17, 1930

		Spot	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Sales
No. 1 Standard Contract of 10 Tons															
Dec.	4	9.25	9.25	9.36	9.47	9.58	9.67	9.75	9.85	9.95	10.06	10.17	10.27	10.47	28
	5	9.31	9.33	9.42	9.51	9.60	9.68	9.75	9.85	9.95	10.05	10.15	10.25	10.40	29
	6	9.35	9.40	9.45	9.56	9.68	9.79	9.90	10.00	10.10	10.20	10.30	10.35	10.40	13
	8	9.56	9.60	9.66	9.77	9.88	9.99	10.10	10.17	10.26	10.36	10.46	10.55	10.65	24
	9	9.45	9.50	9.53	9.62	9.71	9.81	9.90	10.00	10.10	10.18	10.30	10.40	10.50	19
	10	9.43	9.45	9.50	9.60	9.70	9.80	9.90	9.98	10.05	10.15	10.25	10.35	10.45	15
	11	9.50	9.55	9.55	9.64	9.73	9.83	9.93	10.03	10.12	10.22	10.32	10.42	10.52	6
	12	9.37	9.48	9.48	9.53	9.57	9.66	9.75	9.85	9.95	10.05	10.15	10.25	10.35	19
	13	9.30	9.33	9.30	9.40	9.50	9.60	9.70	9.75	9.80	9.90	10.00	10.20	10.30	9
	15	9.06	8.95	8.95	9.05	9.15	9.25	9.35	9.44	9.53	9.63	9.73	9.83	9.93	92
	16	8.81	8.85	8.85	8.85	8.95	9.04	9.12	9.18	9.25	9.35	9.45	9.55	9.65	58
	17	8.70	8.75	8.75	8.83	8.92	9.02	9.12	9.20	9.28	9.37	9.45	9.55	9.65	71
"A" Contract of 2½ Tons															
Dec.	4	——	9.20	9.30	9.40	9.40	9.60	9.70	9.80	9.90	10.00	10.10	10.20	10.40	58
	5	——	9.20	9.30	9.40	9.40	9.60	9.70	9.80	9.90	10.00	10.00	10.10	10.30	20
	6	——	9.30	9.30	9.40	9.50	9.60	9.70	9.80	10.00	10.00	10.10	10.20	10.40	10
	8	——	9.50	9.60	9.60	9.70	9.80	9.90	10.00	10.10	10.20	10.30	10.40	10.50	149
	9	——	9.40	9.40	9.50	9.60	9.70	9.80	9.90	9.90	10.00	10.10	10.30	10.40	14
	10	——	9.30	9.40	9.50	9.60	9.70	9.80	9.90	9.90	10.00	10.10	10.20	10.30	32
	11	——	9.40	9.40	9.50	9.60	9.70	9.80	9.90	10.00	10.10	10.20	10.30	10.40	147
	12	——	9.40	9.30	9.40	9.50	9.60	9.70	9.80	9.90	10.00	10.10	10.20	10.30	211
	13	——	9.30	9.30	9.40	9.40	9.50	9.70	9.70	9.80	9.80	9.90	10.10	10.20	45
	15	——	8.90	8.90	9.00	9.10	9.20	9.30	9.30	9.40	9.50	9.60	9.70	9.80	138
	16	——	8.80	8.80	8.70	8.90	8.90	9.00	9.10	9.20	9.30	9.40	9.50	9.60	316
	17	——	8.70	8.70	8.70	8.80	8.90	9.00	9.10	9.20	9.30	9.40	9.50	9.60	99

CATALPO
for
Footwear

MONSANTO PROFITS SHOW INCREASE SINCE JULY

At its meeting on November 28, the board of directors of the Monsanto Chemical Works, St. Louis, Mo., declared the usual quarterly dividend of 31¼c per share in cash and 1½ per cent in stock, payable January 2, 1931, to stock of record December 10.

It was announced by the board that the quarterly stock dividend would be discontinued with this dividend and that future dividends be on a cash basis only.

Monsanto reported for the first nine months of this year consolidated net profit of $795,912 after charges and taxes, equal to $1.91 on 416,449 shares outstanding. Officials recently announced that July was the poorest month experienced for some time but each month since had shown a decided improvement and that the final quarter of this year is expected to make a satisfactory showing.

It is reasonable to predict that Monsanto will report for full year net profit equal to at least $2.40 a share. Therefore, in all probability, directors will increase the present annual cash dividend of $1.25 to at least $1.50, with a possibility of it being $1.75, according to the trend of business during the balance of the present year.

NEW HAMPSHIRE OUTLAWS WORN AND FAULTY TIRES

The "economical" automobile driver who runs a car with patched and worn-out tires is not only short-sighted and a highway menace, but also a lawbreaker under existing New Hampshire statutes, according to the Registrar of Motor Vehicles, John F. Griffin. Commenting on a plan in Pennsylvania to secure the passage of legislation compelling the use of tires of good quality and adequate strength, Griffin declared New Hampshire does not need new laws, since his department already has authority to revoke the registration of any vehicle not safely equipped, either as to tires or other accessories.

Recently, he said, his officers had occasion to stop a Boston-Montreal bus in Concord while its driver, under orders, took off a badly worn tire and replaced it with a new one. "An inspector noticed that the front tire was chafed down to its canvas lining," the registrar said. "If that tire had blown out while the bus was going at full speed, an accident would have occurred and passengers might well have been seriously injured. If the driver, when his attention was called to the matter, had refused to change the tire, he would, in my opinion, have been guilty of negligence and would have been liable to prosecution."

Keds Plant Increases Output

Maurice C. Smith, Jr., factory manager of the National India Rubber Company, Bristol, R. I., has announced that the Keds division, which was operating on a four-day schedule, returned to a five-day schedule on December 1. The weekly output will, therefore, be increased by 25 per cent.

Weldon Roberts Not to Build

The Weldon Roberts Rubber Company, 18 Oliver Street, Newark, N. J., has postponed for the present the plans for the construction of a two-story addition to its rubber products factory at 361 Sixth Avenue, Newark, N. J. The project, as originally planned, involved an estimated expense of $40,000.

SIMPLIFICATION PROGRAM FOR SKID PLATFORMS

It has just been announced by the Division of Simplified Practice of the Bureau of Standards, Department of Commerce, that the required degree of acceptance has been received to the revised Simplified Practice Recommendation No. 95—Skid Platforms, and that this revision may, therefore, be considered as in effect.

The revised simplification program, as approved by the industry, recommends that the over-all dimensions for platforms for No. 1 skids, used for shipment, be not less than 32 inches wide by 54 inches long, nor greater than 33 inches wide by 54 inches long. Further, that the over-all dimensions for platforms of No. 2 skids, used for shipment, be 42 inches wide by 60 inches long.

It is also recommended that the clear height from bottom of runner or other supports to under side of platform be 8 inches or 12 inches, and that the minimum horizontal distance between inside of runner or other supports be 29 inches.

GOODRICH AKRON PLANTS MAKE RECORD IN SAFETY

Establishment of an all-time safety record during October with only three lost-time accidents was announced by Walter L. Schneider, safety engineer at the B. F. Goodrich Company. The record represents a 50-per cent reduction over the previous mark in August.

During the month, Schneider said, 11,000 men and women were employed at the plant. Approximately 1,500,000 man-hours were worked.

"The record is the result of accident prevention education," Schneider declared. "Our employes are taught to work, and act safety in every way. The result is a saving of thousands of dollars and days of suffering annually."

Three divisions, the mechanical, tire and footwear, went through the month with no accidents.

"The rubber industry is regarded as one of the most dangerous," Schneider said. "The average shop man works with a knife and shears at all times, but safe use of these implements has been taught until the danger is practially eliminated."

"Mill and calender accidents which in the past usually meant amputation of a leg or an arm, have been eliminated in the last two years."

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LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, DECEMBER 17, 1930

RUBBER

Crude

WITH no startling developments to guide its course, the rubber market during the past fortnight has followed the securities markets in falling back to lower levels. Standard ribbed smoked sheets closed at New York on November 17 at a spot price of 8¼ cents a pound, as compared to a price of 9½ cents two weeks ago.

The year is ending with a world consumption considerably under world production and, therefore, a record carryover of the commodity. Stocks of finished products are at low levels, however, and some increase in factory output seems necessary after the turn of the year. Several leading Akron manufacturers have already signified their intention of making such increases, immediately following their annual inventory taking periods.

The hope of the rubber market for any advance in price during 1931 seems to depend on a definite restrictive agreement between the British and Dutch or some other course of action, either voluntary or governmental, toward curtailment of output.

Prices quoted on the New York outside market on December 17 were as follows:

Plantations—

Ribbed Smoked Sheets—			
Spot-Dec.	.08⅝	@	.08⅞
Jan.-Mar.	.08¾	@	.09
Apr.-June	.09¼	@	.09⅜
First Latex, crepe spot	.08¾	@	.09
Amber Crepe, No. 2	.08½	@	.08¾
Amber Crepe, No. 3	.08¼	@	.08½
Amber Crepe, No. 4	.08	@	.08¼
Brown Crepe, Clean thin	.08¼	@	.08⅜
Brown Crepe, specky	.07⅞	@	.08⅛
Liquid Latex, per gal.	.75	@	.85

Paras—

Up-river Fine	.12	@	.12¼
Up-river Medium	Nominal		
Up-river Coarse	.07	@	.07½
Acre Bolivian, fine	.12	@	.12½
Caucho Ball, Upper	.07	@	.07½
Islands, fine	Nominal		

Centrals—

Central, scrap	—	@	.07
Esmeraldas	—	@	.07

Balata—

Block, Colombia	Nominal		
Block, Ciudad	.34	@	.35

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers

Spot.-Dec.		@	4¼d
Jan.-Mar.		@	4⅜d
Apr.-June	4½	@	4⅝d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers

Spot		@	4d

Scrap

The low reclaim consumption in November was not unexpected and in itself has had no effect on the scrap rubber market. Dealers still look forward to an increase in business with the turn of the year. Prices for rubber scrap, however, are still holding close to their rock bottom levels, as the following late quotations show:

(Prices to Consumer)

Auto tire peelings	ton	23.50	@	25.00
Mixed auto	ton	12.00	@	12.50
Bicycle tires	ton	9.00	@	10.00
Clean solid truck tires	ton	24.50	@	26.00
Boots and shoes	cwt.	1.10	@	1.25
Arctics, untrimmed	cwt.	.90	@	1.00
Inner tubes, No. 1	lb.	.05¼	@	.05½
Inner tubes, No. 2, compounded	lb.	.02½	@	.02¼
Inner Tubes, Red	lb.	.02¼	@	.02⅜
Air Brake Hose	ton	10.00	@	12.00
Rubber Hose	ton	9.00	@	10.00

Reclaimed

Production of reclaimed rubber during November was 10,763 long tons and consumption only 8,816 long tons, an amount equal to 37.5 per cent of the crude rubber absorption during the month. For the same month last year, reclaim consumption totaled 18,380 long tons, equal to 55.4 per cent of the crude consumption. Late prices follow:

High Tensile

Super-Reclaim Black	lb.	.08½	@	.08¾
High Tensile Red	lb.	.08¼	@	.08½

Shoe

Unwashed	lb.	.06	@	.60¼
Washed	lb.	.08	@	.08¼

Tube

No. 1 (Floating)	lb.	.08½	@	.08¾
No. 2 (Compounded)	lb.	.07½	@	.07¾

Tires

Black	lb.	.05¾	@	.06
Black, selected tires	lb.	.06	@	.06½
Dark Gray	lb.	.07	@	.07½
Light Gray	lb.	.07¾	@	.08
White	lb.	.08¾	@	.09
Truck, Heavy Gravity	lb.	.06	@	.06¼
Truck, Light Gravity	lb.	.06¼	@	.06½

Miscellaneous

Mechanical blends	lb.	.05	@	.05½

COTTON and FABRICS

Cotton

DURING the past fortnight the cotton market has declined to the lowest levels in years, spot middling uplands selling at New York for 9.45 cents a pound on December 15. The commodity rallied 15 points the following day and 35 points on December 17 with a strong advance in the securities markets, closing the period at 9.95 cents a pound.

The government's crop report on December 8 showed a reduction of 195,000 bales in the estimated yield, but this had little effect in consideration of the fact that the general visible supply today is approximately 10,000,000 bales. The foreign and domestic demand for cotton shows no signs of improving, and exports are again falling behind those of last season.

The high, low and closing prices on the New York Cotton Exchange on December 17 were as follows:

	High	Low	Close	Close
		Dec. 17		Dec. 4
Dec.	9.78	9.39	9.78	10.37
Jan.	9.92	9.45	9.84	10.47
Mar.	10.18	9.71	10.11	10.72

Tire Fabrics

The tire industry last month used 14,725,540 pounds of cotton fabric, making a total for the first eleven months of 1930 of 177,545,791 pounds. Consumption in the final month will bring the year's total to about 190,000,000 pounds, as compared with 261,030,817 pounds in 1929. Late tire fabric prices follow:

CORD				
Peeler, carded, 23/4/3	lb.	.34½	@	.34¾
Peeler, carded, 23/5/3	lb.	.33	@	.33¼
Peeler, carded, 13/3/3	lb.	.30½	@	.30¾
Peeler, carded, 15/3/3	lb.	.31	@	.31¼
Egyptian, carded, 23/5/3	lb.	.43	@	.43½
Egyptian, combed, 23/5/3	lb.	.47	@	.47½
CHAFERS				
Carded, American, 8 oz.	lb.	.26½	@	.27
Carded, American, 10 oz.	lb.	.26	@	.26½
Carded, American, 12 oz.	lb.	.25½	@	.26¼
Carded, American, 14 oz.	lb.	.25	@	.26
LENO BREAKER				
Carded, American, 8¼ oz.	lb.	.26	@	.32
Carded, American, 10¼ oz.	lb.	.26	@	.32
SQUARE WOVEN				
Carded, American, 17¼ oz. 23-11 ply	lb.	.33	@	.33½
Carded, American, 17¼ oz. 10-ply	lb.	.25	@	.25½

Sheetings

Sheetings were again lower at the end of the fortnight, following the course of the raw cotton market. The latest quotations, as reported by the Textile Brokers Association, are as follows:

40-inch, 2.50-yard	yd.	—	@	.08¼
40-inch, 2.85-yard	yd.	.07	@	.07⅛
40-inch, 3.15-yard	yd.	—	@	.08½
40-inch, 3.60-yard	yd.	—	@	.06⅞
40-inch, 3.75-yard	yd.	.05⅞	@	.06
40-inch, 4.25-yard	yd.	—	@	.05⅝

Ducks

Prices for all grades of cotton ducks with the exception of hose and belting grades closed the fortnight at new low levels for the year. Despite the reductions, the market has not been any more active. The latest quotations follow:

Belting and Hose	lb.	.25	@	.26
Enameling	lb.	.22	@	.24
Single filling	lb.	.10¾	@	.12
Double filling	lb.	.13	@	.14

CHEMICALS

THE rubber chemical industry, looking back on 1930, can now see that what some thought would be the biggest year in the history of the rubber industry was equal only to 1927 in its rate of absorption of materials. The super-production of 1928 and 1929 was out of proportion to the normal growth of the industry, and there had to be a recession in order to bring inventories back to a level consonant with the requirements of the ultimate consumers. Now that this readjustment has been effected, the industry can continue in the line of its normal progress, which is higher than the rate of 1927 or 1930 but not yet equal to the inflated activity of 1928 and 1929. Chemical suppliers may, therefore, expect improved business in 1931.

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.80 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.70
Aniline oil, drums, f.o.b. works	lb.	.15 @	.16
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.44½
Diphenylguanidine	lb.	.30 @	.32½
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.40
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.58½@	.61
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	3.25 @	--
Oxynone	lb.	.68 @	.80
Phenex	lb.	.75 @	—
Pipsol	lb.	4.30 @	4.50
R & H 40	lb.	.40 @	.42½
R & H 50	lb.	.40 @	.42½
R & H 397	lb.	.75 @	.77½
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Tensilac, No. 39	lb.	.40 @	.42½
Tensilac, No. 41	lb.	.50 @	.52½
Thermio F	lb.	.50 @	.55
Thiocarbanilid, drums	lb.	.25½@	.28½
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.62½
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.08½@	.08¾
Litharge, domestic	lb.	.07¾@	—
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)			
Blues			
Prussian	lb.	.35 @	.36
Ultramarine	lb.	.06 @	.32
Browns			
Sienna, Italian	lb.	.05½@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.30 @	.32
medium	lb.	.31 @	.33
dark	lb.	.34 @	.36
Chromium Oxide, bbl.	lb.	.34½@	.35½
Reds			
Antimony			
crimson, 15/17	lb.	.40 @	.44
sulfur, free	lb.	.56 @	.66
golden, 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.11
Domestic (Maroon)	lb.	.11 @	—
Oximony	lb.	.13¼@	—
Red oxide, pure	lb.	.10 @	.12
Smith's 444 Crimson f.o.b. Springfield	lb.	.08¾@	.10
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Venetian red	lb.	.08 @	.06
Vermillion, quicksilver, English	lb.	1.75 @	1.80
Whites			
Lithopone, Akcolith	lb.	.05 3/5@	.06
Lithopone, Albalith	lb.	.05¼@	.05¾
Lithopone, Azolith	lb.	.05¼@	.05¾
Lithopone, Vanolith	lb.	.05¾@	—
Titanium oxide	lb.	.21 @	—
Titanox B, f.o.b. St. Louis.	lb.	.06½@	.07
Titanox C, f.o.b. St. Louis,	lb.	.07 @	.07½
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.06½@	.07
ZZ (leaded)	lb.	.06⅞@	.06⅞
Horsehead Brand:			
Special	lb.	.07 @	.07½
XX Green	lb.	.07 @	.07½
XX Red, lead free	lb.	.06½@	.07
Kadox, black label	lb.	.10⅜@	.10⅞
blue label	lb.	.09⅜@	.09⅞
red label	lb.	.08 @	.08½
Zinc Oxide—French Process			
White seal	lb.	.11⅜@	.11⅞
Green seal	lb.	.10⅜@	.10⅞
Red seal	lb.	.09⅜@	.09⅞
Yellows			
Chrome	lb.	.16½@	.17
Ocher, French medium	lb.	.02 @	.03
domestic	lb.	.01⅝@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.07½@	.07¾
Asbestine	ton	14.75 @	18.00
Barium carbonate	lb.	.03½@	.05
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blacks			
Arrow "Aerfloted"	lb.	.04½@	.09½
Bone Black	lb.	.06 @	.12½
Carbon, compressed	lb.	.04 @	.08½
Carbon, uncompressed	lb.	.04 @	.08½
Disperso, f.o.b. Louisiana	lb.	.041 @	—
Disperso, f.o.b. Texas	lb.	.04 @	—
Drop Black	lb.	.06 @	.14
Fumonex	lb.	.04 @	.07½
Excello, compressed	lb.	.05 @	.09
Gastex, f.o.b. Texas	lb.	.03½@	.05
Lamp Black	lb.	.10 @	.40
Micronex	lb.	.04½@	.09½
Thermatomic-Thermax	lb.		
Flex	lb.		
P-33	lb.		
United carbon, fob Tex.	lb.	.04½@	.09½
Velvetex carbon	lb.	.03 @	.06
Blanc fixe dry f.o.b. works	ton	75.00 @	90.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Clay, Kaolin, domestic	ton	8.00 @	9.00
Aerfloted, Suprex	ton	8.00 @	20.00
Colloidal	lb.	.05 @	.08
Congaree, c. l. f.o.b. mine	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Mineral Flour, c.l. f.o.b. mine	ton	20.00 @	23.00
Par	ton		
Tensulite		15.00 @	—
Glues, extra white	lb.	.22 @	.26
medium white	lb.	.20 @	.24
Magnesia, carbonate	lb.	.08¾@	.11
Mica, white water grnd.	lb.	.06 @	.08
Off color (biotite)	lb.	.05 @	.07
Rotten Stone (powdered)	lb.	.02 @	.05
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.62 @	3.92
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	— @	1.00
English cliffstone	cwt.	1.75 @	2.00
Quaker	ton		
Superfine	ton	10.00 @	12.00
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.09½@	.10½
Zinc Stearate	lb.	.23 @	.24½

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Paradura	ton	62.50 @	65.00
Parmr, solid	ton	28.00 @	48.00
Pioneer, MR, sclid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00
Robertson, MR, solid	ton	34.00 @	80.00
M.R. (gran)	ton	38.00 @	80.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	.33½@	.35
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.13 @	.17
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	3.76 @	3.91
Soda ash, 58% C.L.	cwt.	1.40 @	
Oils			
Corn, refined, bbls.	lb.	.08¾@	.10¼
Cottonseed, crude		.06⅛@	.07
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c.l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04¼@	.04½
Fluxrite	lb.	.05½@	.06½
Palm Lagos	lb.	.05¾@	.06
Niger	lb.	.05⅛@	.05¼
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
Pigmentaroil	gal.	.18 @	.23
Pine, steam distilled	gal.	.65 @	.70
destructively distilled	gal.	.54 @	.55
Witco Palm Oil	lb.	.11 @	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt.	bbl.	7.00 @	—
Rosin, grade K, 280 lb. bbl.		— @	5.65
Pigmentar	gal.	.18 @	.23
Tar Retort, 50 gal.	bbl.	13.50 @	15.00
Solvents			
Acetone, pure	lb.	.11 @	.12
Alcohol, denatured, No. 1 bbls.	gal.	.40 @	.44
Benzol, 90%	gal.	.21 @	.23
Carbon, bisulphide	lb.	.05½@	.06¼
Carbon, tetrachloride	lb.	.06¼@	.07
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.35 @	.40
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	.41 @	.42
wood	gal.	.37 @	.39
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.34 @	.36
Carnauba	lb.	.30 @	.34
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06½@	.07
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02½@	—
White crude scale 124/126	lb.	.02½@	—
Refined, 125/127	lb.	.03⅝@	—
Refined, 128/130	lb.	.03¾@	—
Refined, 135/137	lb.	.05¼@	—
Refined, 138/140	lb.	.07¼@	—

ANTI-OXIDANTS

Agerite, Resin	lb.		
Powder	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.66

SPECIALTIES

Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

SUBSTITUTES

Black	lb.	.08 @	.14
White	lb.	.10 @	.16
Brown	lb.	.08 @	.15

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½@	.04½
Sulfur flour, Ref'n'd, 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Vandex	lb.		

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

WITH the increase last month of domestic crude rubber stocks to the highest total in history, the aggregate visible stocks either on hand or afloat to this country rose to 242,463 long tons. This is equal to approximately 65 per cent of the entire United States consumption of crude rubber in 1930, which is figured to be about 372,000 long tons.

Meanwhile, English warehouse stocks at London and Liverpool have increased slightly to 117,774 long tons on December 13 as compared to 116,045 long tons on November 15. Despite some contraction of stocks in the East, it is expected that the carryover of the commodity at the end of 1930 will appreciably exceed the heavy carryovers of 1928 and 1929.

Domestic rubber consumption in November at only 23,479 long tons marked the lowest monthly figure recorded since July, 1924. With the sole important exception of Great Britain, world rubber consumption this year was far below the expectations of authorities in the trade. Due to the May "tapping holiday" and other curtailment action, production was also held down below predicted estimates, but was still far above the low absorption.

Figures covering imports and exports from leading producing and consuming countries have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

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Automobile Production—U. S. and Canada
Rubber Exports from Producing Countries
Rubber Imports into Consuming Countries
Production of Misc. Rubber Goods
Imports of Guayule and Related Gums
Consumption, etc., of Reclaimed Rubber

U. S. Imports and Exports of Crude Rubber

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1928:							
Jan.	39,107	30,278,444	34.56	1,988	1,734,990	38.95	37,119
Feb.	33,663	27,763,655	36.82	2,738	2,229,589	36.35	30,925
Mar.	40,611	32,103,042	35.29	3,718	2,587,435	31.07	36,893
Apr.	37,935	27,287,266	32.11	2,272	1,415,024	27.80	35,663
May	31,059	19,058,672	27.39	2,399	1,386,307	25.80	28,660
June	27,765	14,121,219	22.71	2,621	1,400,697	23.86	25,144
July	31,258	14,144,765	20.20	3,087	1,451,446	20.99	28,171
Aug.	31,204	12,860,150	18.39	2,377	1,084,646	20.37	28,827
Sept.	39,835	16,512,019	18.50	3,038	1,384,148	20.34	36,797
Oct.	44,058	18,200,332	18.44	2,405	1,085,407	20.15	41,653
Nov.	36,519	14,878,441	18.19	2,788	1,207,089	18.52	33,731
Dec.	43,511	17,580,966	18.04	2,738	1,165,743	19.00	40,773
1929:							
Jan.	57,564	22,872,943	17.74	3,663	1,773,401	21.61	53,901
Feb.	64,265	24,760,111	17.20	2,955	1,374,788	20.77	61,310
Mar.	50,604	20,380,905	17.98	4,218	2,094,037	22.16	46,386
Apr.	55,725	25,542,726	20.46	3,293	1,624,237	22.02	52,432
May	51,161	24,355,511	21.25	2,386	1,349,690	21.24	48,325
June	41,663	18,799 [illegible]	20.14	3,152	1,470,746	20.83	38,511
July	43,944	19,34[illegible]	19.65	3,424	1,590,411	20.73	40,520
Aug.	37,222	16,53[illegible]	19.83	2,644	1,232,217	20.80	34,578
Sept.	34,472	15,214,485	19.70	2,011	861,068	19.11	32,461
Oct.	38,163	16,192,261	18.94	2,614	1,190,510	20.33	35,549
Nov.	43,507	18,189,305	18.66	2,929	1,300,354	19.82	40,578
Dec.	42,952	17,573,330	18.27	2,745	1,007,279	16.38	40,207
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,798,240	15.48	2,280	960,790	18.80	40,407
Mar.	44,976	14,653,243	14.54	3,187	1,192,708	16.71	41,789
Apr.	45,423	14,783,605	14.53	2,688	892,532	14.82	42,735
May	42,692	13,373,232	13.98	3,154	1,085,432	15.37	39,538
June	39,993	12,215,848	13.79	3,125	1,027,136	14.67	36,868
July	35,182	10,553,944	13.39	2,732	736,863	12.04	32,450
Aug.	35,713	9,666,362	12.08	2,194	646,667	13.16	33,519
Sept.	35,380	8,460,812	10.68	1,509	429,789	12.72	33,871
Oct.	46,069	9,893,980	9.59	2,054	348,331	7.57	44,015
Nov.							
Dec.							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1923	1924	1925	1926	1927	1928	1929	1930
Jan.	30,106	29,058	29,638	32,196	31,518	34,403	43,002	36,669
Feb.	30,149	25,736	29,761	31,136	30,137	33,702	41,594	32,726
Mar.	36,629	28,385	33,498	32,936	36,141	35,688	44,730	35,914
Apr.	29,085	27,129	34,139	32,696	35,871	32,772	47,521	40,207
May	36,155	25,845	35,322	29,364	34,592	37,333	49,233	39,902
June	24,272	22,753	35,822	28,598	33,801	37,676	43,227	34,463
July	17,685	23,396	36,053	27,577	29,219	37,407	41,526	29,245
Aug.	20,359	28,982	35,909	34,533	33,460	42,927	38,274	30,575
Sept.	17,594	31,497	31,691	32,904	27,214	39,882	34,707	25,288
Oct.	21,321	31,520	29,047	29,836	26,790	40,857	34,800	27,271
Nov.	20,437	27,289	28,853	28,080	26,792	37,461	27,659	23,479
Dec.	31,902	27,199	28,748	26,293	25,492	31,232	23,531	
Totals	305,694	328,769	388,481	366,149	371,027	441,340	469,804	

Figures on Quarterly Basis

Quarter	1923	1924	1925	1926	1927	1928	1929	1930
Jan./Mar.	96,776	87,609	95,263	94,301	99,216	103,558	128,565	101,610
Apr./June	89,493	75,674	104,099	87,109	103,242	103,500	139,292	112,092
July/Sept.	55,621	83,813	99,493	93,793	89,210	117,573	113,746	85,261
Oct./Dec.	63,617	92,656	85,789	83,212	80,860	117,597	84,872	
Totals	305,507	339,752	384,644	358,415	372,528	442,227	466,475	

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1929	1930	MONTHS	1929	1930
January	22,602,000	25,731,000	July	36,860,000	38,256,000
February	22,776,000	26,509,000	August	37,759,000	37,433,000
March	28,495,000	31,029,000	September	34,193,000	37,823,000
April	32,019,000	34,549,000	October	32,816,000	33,328,000
May	34,117,000	36,497,000	November	31,502,000	
June	33,163,000	35,902,000	December	26,550,000	

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave
1928																																
July	—	18⅝	18⅝	—	19	19	19	—	19¼	19¼	19½	19¾	19½	—	19½	19⅝	19⅝	19⅝	19⅝	19¾	20⅜	20½	19⅝	19½	19⅝	19¾	19¾	19¾	—	19¼	19⅝	19⅝
August	19½	19½	19¾	19⅝	—	19¾	19⅝	20	20	19⅞	19⅞	19⅞	19⅞	19⅝	19⅝	19½	19⅝	19½	19¾	19⅝	19¾	19	19¼	19¼	19¼	19	19	19	19	19	19	19½
September	—	—	19	18⅝	18⅝	18⅝	18⅝	18⅝	—	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18½	18½	18¾	18	18	—	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18½
October	18⅝	18½	18½	18⅝	18⅝	18⅝	—	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	19	19	19	19	18⅝	18⅝	18⅝	18⅝	17⅞	17⅞	17⅞	17⅞	18⅛
November	18⅝	18⅝	18⅝	18⅝	—	18⅝	18⅝	18⅝	18⅝	18⅝	—	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18½	18½	18⅝	18⅝	18⅝	17⅞	17⅞	17⅞	17⅞	17⅞	18⅛
December	17¾	—	17¾	17⅝	17⅝	18⅛	18	18	—	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	17⅞	17⅞	17⅞	17⅞	17⅞	18
1929																																
January	—	18⅛	18⅛	18⅛	18⅛	—	18⅛	18⅝	18⅝	18⅝	18⅝	19	19⅛	19⅛	19⅛	19⅝	19⅝	19⅝	19⅝	20¼	20¼	20½	21¾	21¾	22¾	22¾	22¾	22¾	22¾	21¾	21¾	22¾	20¼
February	22⅝	22	—	21⅝	22¼	22¼	22¾	22¾	22¾	—	23⅛	23⅛	23⅛	24⅛	24⅛	24⅛	24⅞	24⅞	25¼	25¼	25⅝	23½	—	24	24	24	24	24	24	24	—	24	24
March	26	26	—	26	26	26	25⅝	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	24¾	24¾	24¾	24¾	24¾	24¾	24¾	24¾	24¾	24¾	24¾	24¾	24¾	24½
April	23	23¼	22¼	22⅝	22½	—	20⅝	21⅝	21⅝	22⅝	22⅝	21⅞	21⅞	21⅞	21⅞	21⅞	21⅞	21⅞	21⅞	23⅛	23½	23½	23¾	23¾	23¾	23¾	23¾	23¾	23¾	23¾	23¾	23¾	21½
May	19⅞	19⅝	19⅝	19⅝	—	20¼	21⅛	21⅛	22⅛	21	21	21	21	22⅛	22⅛	22⅛	22⅛	22⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛	23⅛
June	21⅛	21⅝	21¾	—	21	21⅛	21⅛	—	21⅝	20⅝	20½	20½	20⅝	20⅝	20½	20½	21	21	21	20⅝	20½	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼
July	20¾	21	21	21	21¼	21¼	21	21	—	22	22	21⅝	21⅝	21⅝	21⅝	21⅝	21⅝	21⅝	21⅝	21⅝	21⅝	21⅝	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼	21¼
Aug.	20¾	21⅝	21	20¼	20⅛	19⅝	—	20¼	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝
Sept.	—	19½	19½	19½	19½	17	17⅛	16¾	—	16½	16½	16½	16⅝	16⅝	16⅝	16⅝	16¼	16¼	16¼	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝
Oct.	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝
Nov.	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝	17⅝
Dec.	—	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16½	16½	16½	16½	16½	16½	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼
1930																																
January	—	15⅞	15⅞	15⅞	15⅞	15⅞	15⅞	15⅞	15	14⅞	14½	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	15½	15½	15½	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝
February	15¼	—	15	15⅝	16	15¾	15⅝	15½	15½	—	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛	16⅛
March	15⅞	—	15⅝	15⅝	15¼	15¼	15⅝	15⅝	15⅝	15	15	15	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼	15¼
April	15¼	15¼	15¼	15¼	14¼	14¼	14¼	14¼	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝	14⅝
May	14⅝	13⅞	13⅞	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝	13⅝
June	13¾	13¾	12	—	—	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½
July	12¼	10⅝	—	10½	10½	10½	10½	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼
August	10⅝	—	9⅝	9	8½	7⅝	8	8	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛
September	9⅝	9⅝	—	8¼	7⅝	8	—	8	8	—	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
October	7⅛	7⅛	8¼	8	—	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝	8⅝
November	8¾	—	8¾	9¼	9¼	9⅛	—	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛	9⅛
December	9½	9½	9½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.86

Average Monthly Price per Pound Since 1922

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14	15.24
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97	15.85
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82	24.55	15.34
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18	14.93
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46	14.24
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	20.64	12.45
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	21.30	11.24
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	19.46	20.59	9.96
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	20.37	8.28
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.83	19.67	8.20
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	16.62	9.01
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	16.12	—
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	22.48	20.55	—

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Sept.	Oct.	Nov.	Dec.	Day	Sept.	Oct.	Nov.	Dec.
1	—	3⅝	4⅝	4⅝	17	4⅛	3⅞	4⅝	4¼
2	4¾	3¾	—	4¾	18	4⅛	3⅞	4⅝	—
3	4⅝	4	4⅛	4¾	19	4	—	4⅝	—
4	4⅛	4	4⅛	4⅝	20	—	4	4⅝	—
5	4⅛	—	4⅛	4⅝	21	—	4⅛	4⅝	—
6	4⅛	3⅞	4⅛	4⅝	22	3⅞	4	4⅝	—
7	—	3⅞	4¼	—	23	3⅞	4⅛	—	—
8	4	4	4⅛	4⅜	24	3⅞	4¼	4⅝	—
9	4⅛	4	—	4⅜	25	3⅞	4⅜	4⅝	—
10	4	3⅞	4¼	4⅜	26	3⅞	—	4⅝	—
11	4⅛	3⅞	4⅜	4⅜	27	3⅞	4¼	4½	—
12	4⅛	—	4⅜	4⅜	28	—	4¼	4½	—
13	4	3⅞	4⅜	4⅝	29	3¾	4⅜	4⅝	—
14	—	3⅞	4½	—	30	3⅝	4⅜	—	—
15	4	3⅞	4½	4½	31	—	4⅜	—	—
16	4⅛	3⅞	—	4⅜					

Average Monthly Price Per Pound

Month	1928 Pence	1929 Pence	1930 Pence	Month	1928 Pence	1929 Pence	1930 Pence
Jan.	19.310	9.942	7.471	Aug.	9.300	10.505	4.880
Feb.	15.713	11.875	7.948	Sept.	8.530	10.160	4.075
Mar.	12.736	12.135	7.595	Oct.	8.807	9.620	4.023
Apr.	8.864	10.490	7.391	Nov.	8.596	8.442	4.440
May	8.845	10.717	6.926	Dec.	8.570	7.958	—
June	9.293	10.580	6.195	Average for Year	10.656	10.291	—
July	9.312	11.065	5.648				

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Nov.	Dec.	Day of Month	Nov.	Dec.	Day of Month	Nov.	Dec.
1	11.51	10.40	11	11.00	9.85	21	10.85	—
2	—	10.60	12	11.25	9.85	22	10.85	—
3	11.20	10.60	13	11.00	9.60	23	—	—
4	—	10.45	14	11.15	—	24	10.85	—
5	10.95	10.45	15	11.10	9.45	25	10.80	—
6	10.85	10.45	16	—	9.60	26	10.70	—
7	10.95	—	17	11.10	9.95	27	—	—
8	11.15	10.30	18	11.00	—	28	10.55	—
9	—	10.30	19	11.00	—	29	10.55	—
10	10.80	10.15	20	10.90	—	30	—	—
						31	—	—

Average Monthly Price Per Pound

Month	1928 Cents	1929 Cents	1930 Cents	Month	1928 Cents	1929 Cents	1930 Cents
Jan.	19.12	20.22	17.21	Aug.	19.28	18.62	12.03
Feb.	18.40	20.21	15.62	Sept.	18.67	18.33	10.85
Mar.	19.38	20.19	15.13	Oct.	19.62	18.46	10.63
Apr.	20.63	20.29	16.39	Nov.	19.84	17.53	10.96
May	21.58	19.41	16.43	Dec.	20.22	17.28	—
June	21.50	18.74	14.48	Average for Year	19.97	19.03	—
July	21.36	18.62	13.10				

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND			AFLOAT			ON HAND AND AFLOAT		
	1928	1929	1930	1928	1929	1930	1928	1929	1930
Jan.	110,244	76,342	126,068	46,441	93,330	65,483	156,685	169,672	191,551
Feb.	108,955	90,058	124,790	48,044	75,790	71,015	156,999	165,848	205,805
Mar.	114,061	100,536	141,843	43,378	67,065	63,646	157,439	167,601	205,489
Apr.	113,083	107,659	143,272	32,783	65,798	63,261	145,866	173,457	211,533
May	105,356	97,192	146,179	33,145	65,793	68,168	138,501	162,985	214,347
June	90,198	92,061	151,485	38,392	54,668	58,657	128,590	146,729	210,142
July	83,242	92,535	152,001	42,943	46,145	58,226	126,185	138,680	210,227
Aug.	68,994	90,769	158,178	54,904	49,423	61,168	123,898	140,192	219,346
Sept.	68,851	84,362	169,607	52,692	58,758	60,923	121,543	143,120	230,530
Oct.	66,421	88,483	184,701	45,646	59,180	51,122	112,067	147,663	235,823
Nov.	61,956	92,219	189,925	75,502	62,358	52,538	137,458	154,577	242,463
Dec.	66,166	118,609		92,037	62,388		158,203	180,997	

(Rubber Manufacturers' Association figures raised to 100%.)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1928	1929	1930	At end of	1928	1929	1930
Jan.	66,524	25,191	60,484	July	35,429	30,080	81,048
Feb.	62,964	25,554	64,557	Aug.	32,084	35,605	80,931
Mar.	58,272	28,214	68,923	Sept.	31,440	42,188	83,329
Apr.	53,425	31,868	74,676	Oct.	24,207	47,803	
May	44,628	31,290	77,312	Nov.	17,775	52,454	
June	38,756	31,025	80,260	Dec.	19,815	54,304	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1930					
July	80,060	80,501	80,814	80,845	
August	80,379	80,044	80,224	80,618	80,611
September	81,880	82,233	82,648	83,136	
October	81,544	82,245	83,102	82,218	
November	77,480	75,159	76,042	76,448	76,670
December	76,877	77,493			

Stocks in Liverpool

1930					
July	28,143	28,226	28,126	28,381	
August	28,404	28,660	29,048	29,673	29,789
September	31,159	31,796	34,085	34,858	
October	36,378	37,244	37,211	38,345	
November	38,941	39,336	40,003	40,492	39,933
December	40,349	40,281			

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1928	1929	1930	End of	1928	1929	1930
Jan.	25,868	29,617	39,727	July	18,663	33,859	45,459
Feb.	22,867	32,373	44,371	Aug.	18,971	30,834	48,132
Mar.	20,538	29,437	45,557	Sept.	14,898	32,138	44,015
Apr.	16,946	26,474	48,473	Oct.	12,140	33,770	39,930
May	17,437	30,764	44,715	Nov.	29,188	30,963	—
June	18,207	30,403	42,451	Dec.	32,895	35,548	—

STOCKS IN OTHER CENTRES

1930 End of	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
Jan.	44,740	28,440	2,134	5,400	3,668
Feb.	41,955	28,180	2,159	5,000	4,370
Mar.	39,206	27,510	2,220	4,759	4,578
Apr.	39,758	23,380	2,204	4,000	4,482
May	26,482	22,730	2,308	4,000	4,388
June	36,378	20,920	2,316	3,856	4,588
July	38,311	27,290	2,312	4,500	4,665
Aug.	39,482	30,310	2,196	5,200	4,489
Sept.	39,520	32,600		5,834	4,854
Oct.					5,156

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1922	16,297,735	0.0	1926	24,199,524	78.8
1923	23,140,620	0.6	1927	19,700,003	79.1
1924	21,863,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.3	1929	24,141,502	80.3
1930			1930		
January	1,601,326	84.0	July	1,449,161	80.7
February	1,653,421	78.9	August	1,504,187	78.1
March	2,061,999	79.1	September	1,052,109	80.2
April	2,339,334	81.1	October	863,579	78.3
May	2,010,067	84.3	November	920,435	72.2
June	1,338,226	83.5	December		

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928	1929
Production	40,932	45,259	51,633	60,845	61,237	64,439	77,944	68,726
Shipments	39,987	45,204	50,120	59,262	59,002	64,059	74,296	69,395
Inventory[2]	6,132	5,772	7,427	8,142	10,456	10,264	13,624	11,838

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1928	1929	1930	1928	1929	1930	1928	1929	1930
Jan.	5,358	6,301	4,485	5,394	6,211	4,406	9,949	12,855	11,924
Feb.	6,363	6,479	4,555	5,031	4,951	4,195	11,721	14,525	11,410
Mar.	6,819	7,049	4,863	5,731	6,289	4,717	12,389	15,329	12,513
Apr.	6,178	7,391	5,648	5,812	6,838	5,089	12,717	15,870	13,076
May	6,759	7,636	3,717	6,457	6,735	5,216	13,024	16,733	13,432
June	6,692	6,847	5,122	7,117	6,800	5,294	12,162	16,497	13,277
July	6,498	6,320	3,991	7,895	7,364	5,447	11,157	15,034	11,812
Aug.	7,469	5,693	4,166	8,403	7,354	5,175	10,034	13,337	10,848
Sept.	6,802	4,460	3,365	7,145	5,623	4,405	9,705	12,070	9,812
Oct.	7,326	4,611	3,582	5,717	4,649	3,499	11,520	12,042	9,803
Nov.	6,075	3,378		4,998	3,355		12,579	12,127	
Dec.	5,605	3,057		4,591	3,237		13,624	11,838	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928	1929
Production	50,850	60,116	70,706	82,614	76,618	70,823	80,180	68,829
Shipments	49,673	59,072	68,016	81,004	71,591	72,896	77,127	70,592
Inventory[2]	7,648	8,425	11,052	11,313	16,200	13,692	16,117	12,807

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1928	1929	1930	1928	1929	1930	1928	1929	1930
Jan.	5,441	6,109	4,607	6,072	6,789	4,857	12,982	14,424	12,704
Feb.	6,895	6,346	4,634	5,431	4,948	4,337	14,650	15,936	13,036
Mar.	6,231	7,000	4,941	5,731	6,317	4,727	15,573	16,641	13,179
Apr.	6,661	7,157	5,510	5,702	6,716	4,848	16,638	17,000	13,784
May	7,168	7,181	5,535	6,300	6,598	5,074	17,702	17,745	13,852
June	6,953	6,542	4,950	7,136	6,515	5,265	17,159	17,294	13,612
July	6,674	5,793	3,939	8,729	7,605	5,855	14,974	15,311	11,657
Aug.	8,343	5,481	4,796	9,350	7,672	5,762	13,931	13,072	10,737
Sept.	7,103	5,190	3,817	7,154	5,859	4,541	13,543	12,585	10,065
Oct.	6,929	5,000	3,951	5,662	4,689	3,472	15,285	12,802	10,517
Nov.	5,592	3,544		5,002	3,480		15,743	12,845	
Dec.	5,184	3,484		4,858	3,404		16,117	12,807	

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States			Canada			Grand Total
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	
1923	4,020,255	3,631,728	388,527	146,438	129,228	17,210	4,166,693
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,428	[illegible]	32,556	3,573,313
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929							
Jan.	402,154	350,617	51,537	21,501	17,164	4,337	423,655
Feb.	466,084	407,589	58,495	31,287	25,584	5,703	497,371
March	584,733	513,266	69,559	40,621	32,833	7,788	625,354
April	620,656	538,679	81,977	41,901	34,392	7,509	662,557
May	603,969	516,055	86,596	31,559	25,129	6,430	635,528
June	545,252	453,956	91,296	21,492	16,511	4,981	566,744
July	500,331	427,213	73,118	17,461	13,600	3,861	517,792
Aug.	499,629	444,711	54,918	14,214	11,037	3,177	513,843
Sept.	415,332	365,651	49,681	13,817	10,710	3,107	429,149
Oct.	380,011	321,195	58,816	14,523	8,975	5,548	394,534
Nov.	217,570	170,928	46,642	9,424	7,137	2,287	226,994
Dec.	119,950	92,717	27,233	5,495	4,426	1,069	125,445
TOTAL	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930							
Jan.	273,089	235,099	37,990	10,388	8,856	1,532	283,477
Feb.	346,940	297,483	49,457	15,548	13,021	2,527	362,488
March	401,378	336,178	64,200	20,730	17,165	3,565	422,108
April	442,630	375,171	67,459	24,257	20,872	3,385	466,887
May	417,154	362,784	54,370	24,672	21,251	3,421	441,826
June	335,475	289,704	45,771	15,090	12,194	2,896	350,565
July	262,363	222,700	39,663	10,188	8,556	1,632	272,551
Aug.	223,046	187,288	35,758	9,792	6,946	2,846	232,838
Sept.	216,877	175,720	41,157	7,957	5,623	2,334	224,834
Oct.	150,044	112,800	37,244	4,541	3,206	1,335	154,585
Nov.							
Dec.							

Exports of Crude Rubber from Principal Producing Countries

(*Long Tons*)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[6]							
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[5]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[5]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,955
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,528
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1928:															
July	30,481	13,383	17,098	5,129	1,043	905	593	366	5,602	7,566	11,594	698	1,264	873	52,781
Aug.	35,674	15,114	20,560	5,720	398	1,227	593	544	5,668	7,438	11,898	712	1,732	450	56,936
Sept.	29,769	11,239	18,530	4,675	457	938	594	447	4,956	6,536	9,863	969	1,614	494	50,073
Oct.	24,476	12,603	11,873	3,999	864	949	564	457	5,295	7,474	10,124	513	1,399	732	44,243
Nov.	68,135	10,436	57,699	8,005	1,048	772	564	425	4,950	7,902	7,805	943	1,790	623	92,526
Dec.	66,763	11,122	55,641	7,848	1,113	744	565	294	5,120	8,792	10,896	948	2,220	588	94,769
1929:															
Jan.	52,546	13,415	39,131	8,301	1,664	873	600	461	5,640	8,067	11,076	850	2,134	642	79,439
Feb.	47,926	12,103	35,823	7,064	1,117	955	600	495	6,572	7,511	10,384	807	2,104	520	73,952
Mar.	49,448	14,553	34,895	6,583	1,413	758	601	499	5,515	6,620	10,629	658	2,332	786	71,289
Apr.	49,816	11,414	38,402	5,097	727	747	548	306	5,997	6,645	11,321	673	1,950	569	72,982
May	43,960	15,593	28,367	5,723	800	966	548	453	6,264	6,961	13,437	1,059	1,922	733	67,233
June	40,398	14,344	26,054	5,563	1,122	1,061	547	422	5,582	6,693	11,270	757	1,398	548	61,017
July	46,454	15,071	31,383	5,457	974	1,247	641	462	6,422	7,192	13,995	575	1,457	543	70,348
Aug.	50,441	15,469	34,972	6,079	685	993	641	431	4,644	7,298	10,782	1,032	1,563	499	69,619
Sept.	53,484	12,392	41,092	7,993	384	832	640	406	4,708	7,517	10,149	655	1,566	504	76,446
Oct.	47,937	12,516	35,421	8,381	812	1,047	671	485	4,697	8,295	10,512	893	1,606	445	73,265
Nov.	46,279	11,204	35,075	6,660	1,065	668	672	278	4,760	6,711	9,380	771	1,442	535	68,017
Dec.	46,147	15,018	31,129	8,683	900	930	672	320	5,189	8,279	11,102	966	1,674	443	70,287
1930:															
Jan.	52,535	11,773	40,762	7,741	1,560	791	600*	386	5,709	7,831	8,920	856	1,837	585	77,578*
Feb.	48,947	12,960	35,987	7,825	1,245	847	600*	469	6,900	7,191	11,414	944	1,797	480	75,699*
Mar.	47,320	13,236	34,084	6,269	1,129	976	600*	391	5,796	6,612	11,070	643	1,674	536	69,780*
Apr.	45,517	16,331	29,186	5,030	856	1,026	600*	366	4,802	6,326	12,582	433	1,201	630	63,038*
May	49,388	36,135	13,253	5,947	975	917	600*	350	6,352	6,661	11,916	753	1,383	555	49,662*
June	36,657	12,120	24,537	4,152	778	1,040	500*	392	4,728	4,776	9,512	425	974	551	52,365
July	41,347	12,759	28,588	4,619	792	1,087	500*	327	6,022	5,891	9,770	648	810	418	59,472
Aug.	47,982	10,304	37,678	6,779	600	740	500*	335	5,982	7,197	9,520	394	809		
Sept.	48,529	8,087	40,442	7,920	343	680	400*	234	5,960	6,358	7,302	527	1,093		

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927 and 1,437 in 1928. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 98 tons 1924, 6 tons 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, and 1,459 tons in 1928. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(*Long Tons*)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,808
1920	249,530	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,399
1921	179,736	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,012
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,173
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,203
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,482	686	4,224	2,055	2,672	632,808
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,015
1928:															
July	28,362	—1,374	3,518	3,887	2,692	2,026	1,598	724	591	895	395	294	175	384	43,837
Aug.	28,827	48	3,527	2,744	2,447	1,868	875	632	707	519	316	359	58	94	43,021
Sept.	36,800	4,199	3,524	3,553	2,812	1,837	1,278	20	603	597	345	377	277	235	56,457
Oct.	41,667	—934	3,728	4,386	2,943	3,711	1,049	98	766	696	141	527	250	318	59,346
Nov.	33,846	—3,141	3,278	3,694	2,799	2,150	1,340	689	837	544	31	337	252	282	46,938
Dec.	40,781	8,438	3,633	2,470	2,618	3,002	1,145	1,378	755	639	148	435	263	206	65,905
1929:															
Jan.	53,922	11,951	5,645	4,711	3,759	3,776	1,481	956	1,061	749	218	638	179	525	89,571
Feb.	61,331	5,179	5,001	4,613	2,908	2,727	1,259	684	1,131	627	118	226	115	356	86,270
Mar.	46,391	9,068	4,409	4,586	4,961	2,680	1,515	716	725	931	316	354	80	409	77,091
Apr.	52,520	8,295	4,854	5,351	3,177	2,308	1,407	703	1,518	750	144	956	40	445	82,478
May	48,475	5,112	3,152	3,682	2,937	2,314	1,417	996	1,437	854	201	468	37	277	71,359
June	38,821	4,787	6,814	3,948	3,075	1,593	1,624	695	2,215	672	687	507	24	520	65,882
July	41,114	4,993	4,839	3,559	3,205	2,388	2,023	1,056	2,918	1,039	253	519	30	465	68,401
Aug.	35,397	14,594	4,645	4,082	2,879	3,663	908	1,234	724	902	254	429	25	319	70,055
Sept.	32,912	17,010	3,889	4,691	1,908	3,511	1,224	1,235	853	672	253	361	91	477	68,453
Oct.	36,040	16,111	4,489	3,355	1,821	3,902	1,838	1,073	1,125	1,147	278	710	91	201	72,181
Nov.	41,097	13,141	3,082	3,776	2,709	3,221	1,275	1,226	1,453	361	253	595	62	313	72,564
Dec.	40,588	12,434	4,274	2,921	2,114	2,251	1,198	1,200	726	741	52	677	90	443	69,709
1930:															
Jan.	44,911	11,106	4,207	3,862	2,842	2,805	910	826	332	612	209	552	200*	577	73,949
Feb.	40,792	10,293	4,482	3,697	2,250	1,386	1,385	2,705	457	1,143	188	315	200*	239	69,533
Mar.	42,216	12,346	4,354	4,289	3,776	2,663	1,083	168	975	678	358	322	200*	263	73,691
Apr.	43,036	13,058	5,006	4,488	2,303	2,769	2,067	949	673	1,431	158	461	200*	255	76,810
May	40,012	9,861	5,233	4,379	2,593	2,699	1,279	1,677	64	1,250	230	274	200*	346	70,599
June	37,374	9,645	4,458	3,794	2,579	2,677	1,378	1,454	67	691	343	507	200*	282	65,500
July	32,785	7,650	3,311	3,449	3,347	1,206	587		84	939	172	756	200*	342	
Aug.	34,513	8,369	3,953	3,515	2,108	2,170	886		265	888	37	747	200*	450	
Sept.	34,373	16,015		4,089	1,578		1,279				221				

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics	Rubber Heels	Rubber Soles	Mechanical Goods Shipments
	Yards	Pairs	Pairs	Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620 (2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1929	50,731,000	232,126,000	34,499,000	74,770,000
1929:				
October	6,116,000	22,386,000	3,502,000	5,887,000
November	4,395,000	17,863,000	3,400,000	4,932,000
December	2,291,000	14,781,000	3,003,000	4,751,000
1930:				
January	3,281,000	15,470,000	3,496,000	5,169,000
February	3,441,000	14,172,000	2,338,000	5,376,000
March	3,570,000	15,439,000	2,582,000	5,981,000
April	4,029,000	17,762,000	2,593,000	5,989,000
May	3,597,000	15,603,000	1,939,000	6,163,000
June	3,379,000	15,795,000	2,784,000	5,318,000
July	2,940,000	15,117,000	2,663,000	4,910,000
August	3,458,000	13,735,000	1,473,000	4,552,000
September	6,481,000	14,322,000	2,193,000	4,083,000

(1) Not available; (2) Last 9 months only.

Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Liquid Latex (1)	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,430	760,690	727	937,038	8,332	2,213,964	——	——
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	——	——
1921	58	26,945	814	1,077,859	1,745	351,893	——	——
1922	127	57,040	812	978,765	2,335	403,812	——	——
1923	1,155	542,227	700	898,524	4,565	853,308	——	——
1924	1,356	536,392	464	568,456	6,165	1,237,100	2,157	864,059
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	731	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1929:								
Nov.	125	47,796	13	11,600	583	182,677	394	185,670
Dec.	100	41,328	25	19,955	550	156,939	281	132,265
1930:								
Jan.	150	55,272	28	28,549	509	141,384	407	194,703
Feb.	75	25,956	52	45,319	367	93,087	311	153,848
Mar.	148	50,007	16	12,498	522	128,844	279	107,847
Apr.	75	19,856	58	54,548	410	103,089	226	98,239
May	172	57,760	17	13,645	602	144,415	749	242,385
June	168	51,561	52	47,000	532	120,424	389	129,368
July	93	26,000	24	17,463	45	102,325	242	78,688
Aug.	50	14,000	11	5,600	766	168,511	944	253,127
Sept.	100	28,000	45	39,512	486	86,664	402	127,751
Oct.	64	18,527	36	30,702	490	113,638	306	99,637

(1) Latex import figures not available before 1924.

Reclaimed Rubber in the United States

(All Quantities in Long Tons—100% Basis)

	Consumption					Consumption			
Year	Production	Tons	% to Crude	Stocks*	Year	Production	Tons	% to Crude	Stocks*
1920	86,395	75,297	38.4	.....	1925	132,930	137,105	35.6	13,203
1921	36,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,334	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1928:									
Jan.	14,862	20,140	58.5	21,941	July	17,278	19,070	51.0	17,305
Feb.	15,291	18,670	55.4	20,848	Aug.	19,049	17,890	41.7	15,881
Mar.	17,069	20,680	57.9	19,558	Sept.	18,693	17,795	44.6	17,991
Apr.	15,393	19,280	58.8	19,283	Oct.	17,182	18,420	45.1	17,026
May	18,945	20,215	54.1	18,137	Nov.	18,245	18,380	49.1	22,399
June	18,781	18,140	48.2	18,709	Dec.	17,728	14,320	45.9	24,785
1929:									
Jan.	18,685	21,068	49.1	24,394	July	18,387	20,236	48.7	19,679
Feb.	18,094	19,829	47.7	23,305	Aug.	19,787	18,230	47.6	22,309
Mar.	19,984	20,867	46.7	22,076	Sept.	18,660	17,071	49.2	24,984
Apr.	19,899	22,435	47.3	20,680	Oct.	18,865	18,744	53.8	25,117
May	20,385	23,176	47.1	19,479	Nov.	14,363	15,330	55.4	26,080
June	18,416	18,141	42.0	17,980	Dec.	13,429	11,531	49.0	27,464
1930:									
Jan.	15,010	17,454	47.6	24,241	July	12,322	12,384	42.3	23,873
Feb.	15,846	14,559	44.5	24,243	Aug.	12,047	10,985	35.9	22,980
Mar.	17,400	15,241	42.2	24,415	Sept.	11,433	10,480	41.4	21,996
Apr.	17,828	16,904	42.0	24,587	Oct.	12,349	10,724	39.3	21,145
May	17,812	17,052	42.7	23,356	Nov.	10,763	8,816	37.5	24,007
June	15,714	14,063	40.8	24,449	Dec.				

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,369 tons in 1929.

REVIEW DESK

Books, New Publications, Catalogues, Etc.

VULTEX. Published by the Vultex Chemical Company, 708 Main Street, Cambridge, Mass. 1930. 7 pp. For free distribution.

Vultex, the result of researches and inventions of Dr. Philip Schidrowitz, is made by pre-vulcanizing the particles of rubber as they are suspended in the latex without coagulating the rubber. The resulting liquid vulcanized latex does not differ materially in appearance from the original latex, but when dried it immediately becomes a finished vulcanized product. The properties of this product and its uses in industry are briefly outlined in this pamphlet.

CARBON BLACK IN 1929. By G. R. Hopkins and H. Backus. Published by the United States Department of Commerce, Washington, D. C. 1930. 11 pp. $0.05.

The carbon black industry experienced a record-breaking year in 1929, when production was 47 per cent above that in 1928. The most important use of carbon black, as measured by volume, is as an ingredient in the manufacture of rubber. Carbon black was first used as a coloring agent in the manufacture of rubber about 1915, but last year the amount delivered to rubber companies was 138,474,000 pounds, or 72 per cent of the total domestic deliveries. Statistics of production, a list of domestic producers, and a table of exports of carbon black are included in this reprint of the Bureau of Mines, together with a short discussion of the methods of manufacture and uses.

BROWN TACHOMETERS. Published by the Brown Instrument Company, Wayne and Roberts Avenues, Philadelphia, Pa. 1930. 16 pp. For free distribution.

Attractively illustrated, this catalogue covers Brown indicating and recording tachometers in various models, together with the electric generators used in their operation. There are also illustrations and data covering standard applications of this equipment.

THE AUTOMOTIVE MARKET IN BRAZIL. Published by the United States Department of Commerce, Washington, D. C. 1930. $0.25.

THE AUTOMOTIVE MARKET IN CHILE. Published by the United States Department of Commerce, Washington, D. C. 1930. $0.15.

Brazil and Chile are two export markets which during recent years have shown rapid expansion. In the former country about 98 per cent of the passenger cars in use are United States makes, while the ratio in the latter market is only slightly lower. Because of the importance of South America as an export outlet for United States automotive products, the Commerce Department has inaugurated a series of studies of the individual markets in that area. Reports on Brazil and Chile have just been completed and include for each country data on its highway system, passenger car market, truck and bus market, foreign competition, customs duties, advertising, installment selling, distribution methods and regional variations of market.

A PICTURE OF WORLD ECONOMIC CONDITIONS IN THE EARLY FALL OF 1930. Published by the National Industrial Conference Board, Inc., 247 Park Avenue, New York City. 1930. 266 pp. $2.50.

The economic interdependence of the nations and the pressing need for a greater degree of international co-operation in order to relieve the present world-wide unsatisfactory economic situation are strikingly brought out in the just completed fifth semi-annual study of world economic conditions by the National Industrial Conference Board. This comprehensive periodical survey of economic conditions, developments and problems throughout the world is supplemented by reports from the board's foreign correspondents. The survey covers the United States and 26 principal foreign countries. Included among the special reports is a survey of the Italian electrical industry by Alberto Pirelli, president of the Pirelli Rubber Company of Milan.

P. I. V. GEARS. Published by the Link-Belt Company, 910 South Michigan Avenue, Chicago, Ill. 1930. 16 pp. For free distribution.

The new P. I. V. (Positive, Infinitely Variable) Gear, an all-metal variable speed transmission, is illustrated and fully described in this booklet, which alludes to its many applications in industry wherever a variation in conveyor or transmission speed is desired.